HARVEST OF IDEAS

April 8–9, 2025 • Pyle Center, Madison, WI

PROCEEDINGS
from the Harvest of Ideas Conference

UW Organic Collaborative
UNIVERSITY OF WISCONSIN–MADISON

*This paper is the proceedings from the **Harvest of Ideas** conference held on April 8 and 9, 2025 in Madison, Wisconsin.*

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We thank the UW–Madison College of Agricultural and Life Sciences for its strong support of organic agriculture and the generous donor whose gift helped strengthen domestic and international partnerships, showcase UW–Madison's work, and create a space for learning, connection, and policy-relevant science.

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Harvest of Ideas 2018

The College of Agriculture and Life Sciences hosted the first Harvest of Ideas in October 2018 on the UW–Madison Campus. The main objective of this first Harvest of Ideas was to explore and identify how the University of Wisconsin can optimize its strengths in research, teaching and outreach to better support organic agriculture in Wisconsin. This conference brought together experts from across Wisconsin's organic industry together with a large interdisciplinary group of faculty, staff, and students from the university's research community. The main action items that were identified during this first conference were:

- Support critical research on long-term systems studies, organic plant breeding, organic animal nutrition, soil health, economics, animal welfare, and human health+
- Develop organic-centric, farmer-led research and outreach networks, like Practical Farmers of Iowa, Discovery Farms, and Grazing Networks
- Create within UW–Madison College of Agricultural and Life Sciences an organic curricular track for undergraduate students interested in organic agricultural careers. Including an internship program for undergraduate students
- Expand course offerings through Farm & Industry Short Course (FISC) with broader access to non-traditional students. And increase capacity of organic agriculture apprenticeship programs
- Expand Extension outreach to both existing and transitioning organic farmers
- Engage with schools, health care facilities, and institutions to facilitate outreach and education about the benefits of organic agriculture and organic food

The inaugural Harvest of Ideas Forum in 2018 ultimately led to the establishment of the UW Organic Collaborative in 2020, creating an institutional home for all aspects of organic work at the University of Wisconsin – from research and outreach to academic programs and beyond. Among the Collaborative's early achievements was the launch of the nation's first Undergraduate Organic Agriculture Certificate Program in Spring 2021. Today, the Collaborative supports three dedicated undergraduate courses in organic agriculture, a team of committed staff, an active online presence, and extensive opportunities for extension and outreach.

Harvest of Ideas 2025

The motivation for the second Harvest of Ideas Conference stemmed from UW-Madison's continued leadership in organic agriculture and the 2022 published report by The Natural Resources Defense Council (NRDC), "Grow Organic: The Climate, Health, and Economic Case for Expanding Organic Agriculture." The theme of the Harvest of Ideas 2025 was ***Organic Agriculture as a Solution to Global Challenges.***

The conference was held April 8-9, 2025, in Madison, Wisconsin, at UW-Madison's Pyle Center and featured a series of panels and discussions involving both domestic and international experts and discussions that included challenges we face as a global society and highlighted how organic agriculture can serve as a solution to these challenges. Panelists discussed their research and personal experience that document the positive impacts of organic management and markets, that led to engaged discussions with the audience.

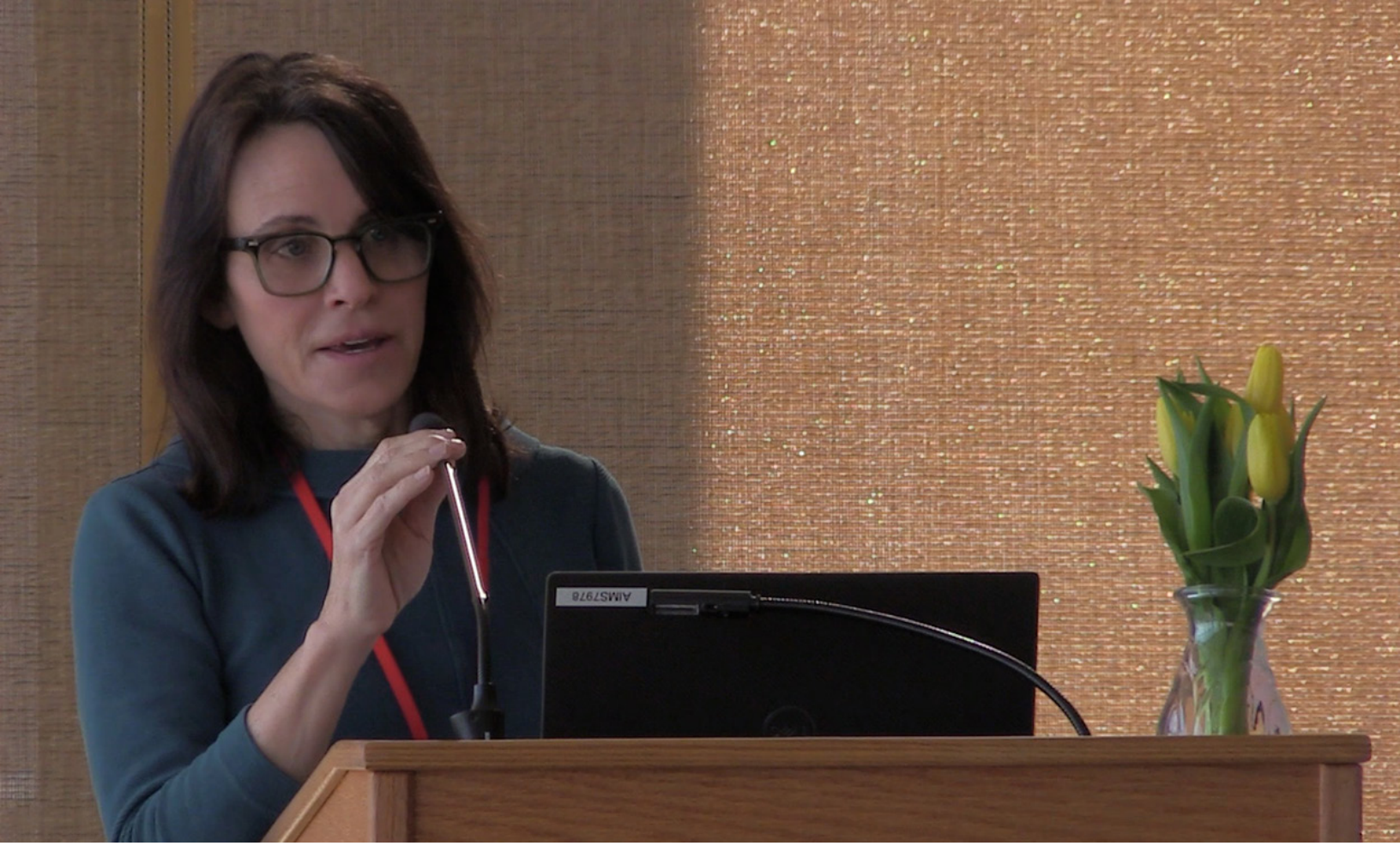
Conference Design. The conference was structured around eight thematic panels, each featuring three distinguished guest presenters representing both U.S. and international expertise. Each panel was tasked with exploring a specific topic under the overarching theme of "Organic as a Solution to Global Challenges." Panelists were allotted 15 minutes each to deliver their presentations, followed by a moderated open discussion lasting an additional 15 to 30 minutes.

To conclude the conference, attendees participated in a collaborative group activity designed to foster reflection and synthesis. Participants were invited to discuss and respond to four guiding questions, with each group presenting their insights and conclusions to the full audience.

Current Trends in World of Organic Agriculture

Since 2018, organic agriculture worldwide has experienced sustained growth driven by increasing consumer awareness of health, sustainability, and environmental concerns. The global area of certified organic farmland expanded to over 96 million hectares by 2022, reflecting a nearly 25% increase since 2018. This growth has been especially strong in countries like India, Australia, Argentina, and the United States. Key trends include the expansion of government-supported organic certification programs, greater investment in research and development, and rising interest in regenerative organic farming practices. The organic food market has also flourished, with consumer demand growing rapidly in both developed and developing nations. Advances in technology—such as precision agriculture tools tailored for organic systems, soil health monitoring, and climate-smart farming methods—have further contributed to productivity and sustainability.

In Wisconsin, organic agriculture has become a cornerstone of the state's farming identity. Since 2018, the number of certified organic farms has continued to climb, maintaining Wisconsin's position as one of the top U.S. states in organic production. Organic dairy remains a leading sector, with the state being a national leader in organic milk and pasture-based livestock systems. Wisconsin farmers have embraced innovative soil management techniques, cover cropping, and diversified crop rotations to meet organic standards and improve resilience. State agencies like the Department of Agriculture, Trade and Consumer Protection (DATCP) and University of Wisconsin have played a pivotal role in supporting organic transition programs, offering technical assistance, and conducting on-farm research. The growth of local markets, community-supported agriculture (CSA), and partnerships with companies like Organic Valley have reinforced Wisconsin's role as a regional hub for organic and regenerative food systems.

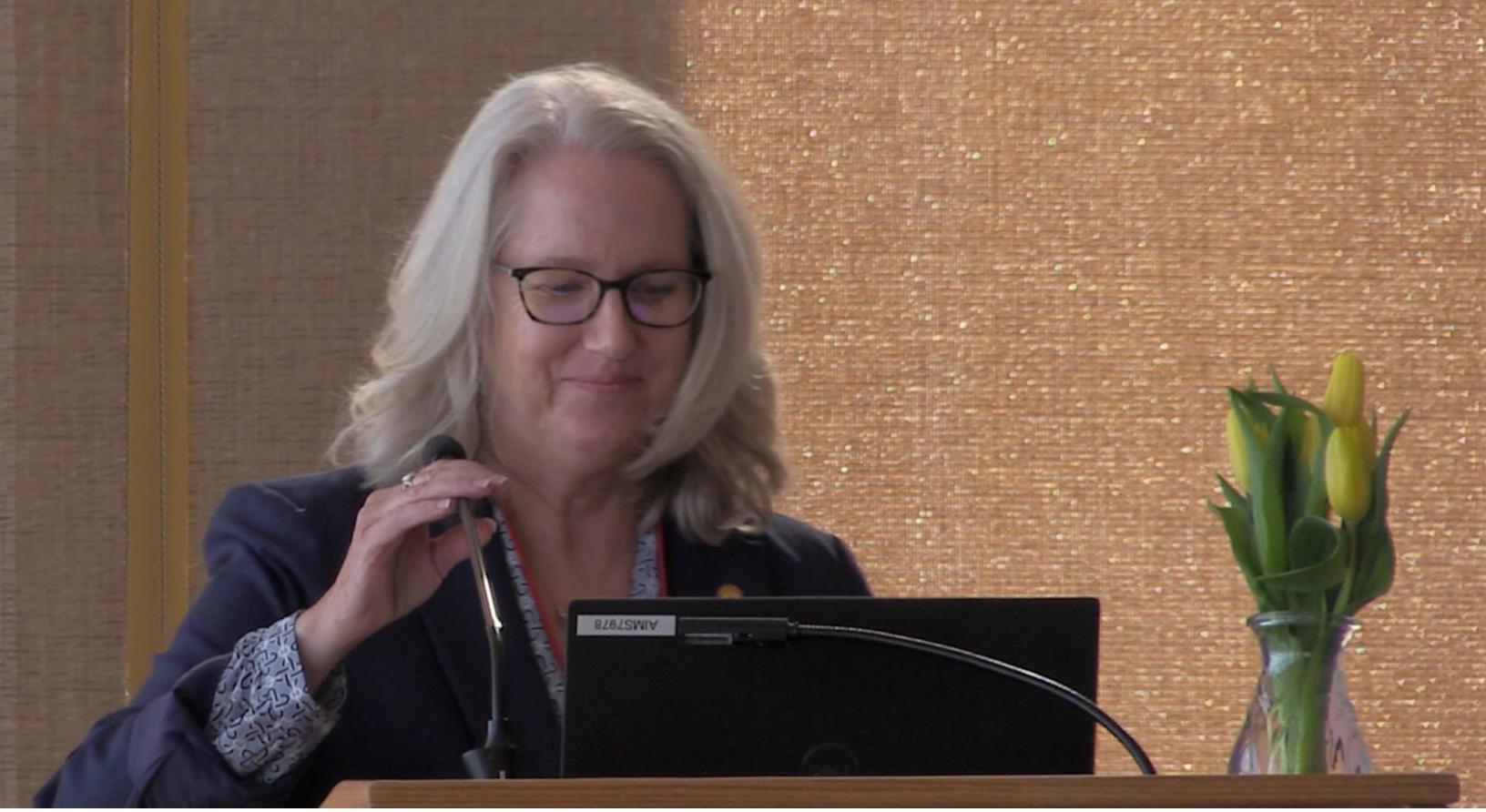


Welcome Address by Dr. Erin Silva,

Professor, College of Agriculture and Life Sciences, University of Wisconsin-Madison

Dr. Erin Silva opened her welcome address with a heartfelt acknowledgment of the global scope of the conference, stating, "We are so honored to have organic experts from, I think about every continent across the globe. This is a really amazing, exciting opportunity, and we truly welcome everyone here to our university." She then shifted to discuss the state of organic agriculture in the United States. While the U.S. leads the world in organic sales—totaling $70 billion—it significantly lags behind in terms of land area dedicated to organic production. Out of the country's 360 million hectares of farmland, only about 2 million are certified organic. Dr. Silva emphasized that both the U.S. and global society face serious environmental and societal challenges, including climate change, water scarcity, soil degradation, loss of biodiversity, and growing inequities in food access and economic opportunity, especially within rural communities. Current policies, she noted, have largely failed to address these interconnected issues.

However, Dr. Silva expressed a strong sense of hope that organic agriculture offers a path forward. The purpose of the conference is to gather stakeholders, researchers, practitioners, and experts from around the world to share knowledge, discuss what is working, and collaborate as a global organic community. By doing so, she believes we can support all types of farmers—whether certified organic or not—advance climate resilience, empower new and underserved growers, and ensure communities have access to healthy, nutritious food. Dr. Silva closed by honoring Wisconsin's rich environmental and agricultural legacy, highlighting figures such as Aldo Leopold, John Muir, and Gaylord Nelson, as well as the pivotal role of institutions like NRCS, MOSES (now Marbleseed), Organic Valley, and the University of Wisconsin–Madison. The UW-Madison Organic Collaborative, with its 42 faculty members and 57 hectares (145 acres) of certified organic research land, reflects the university's long-standing leadership and the administration's commitment to organic as part of the broader solution to our environmental and social challenges.

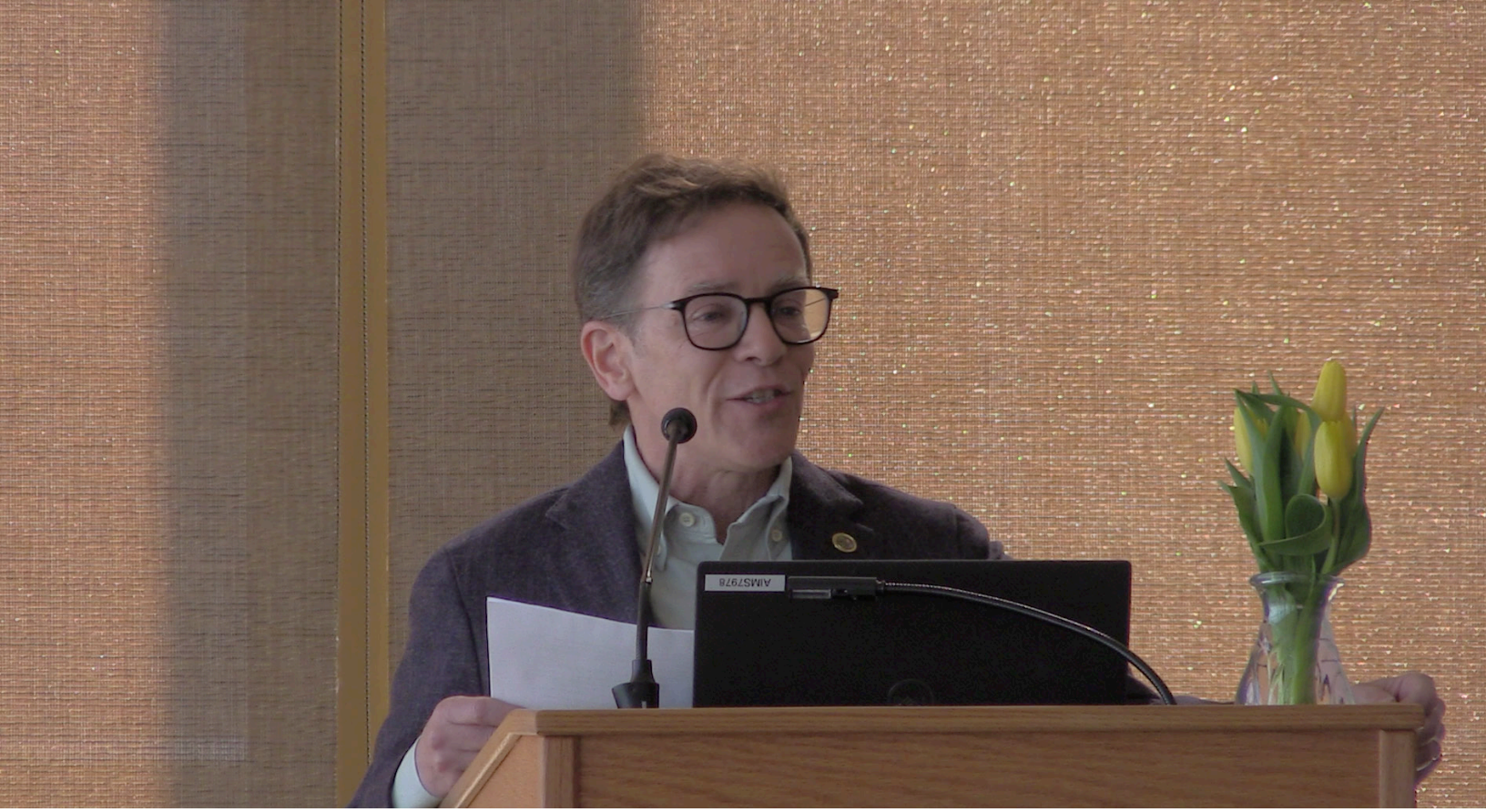


Welcome Address by Dean Glenda Gillaspy,

Dean of the College of Agriculture and Life Sciences at University of Wisconsin, Madison

Dean Gillaspy opened her remarks by expressing excitement about the global participation at the conference and encouraging audience engagement throughout the event. She emphasized the University of Wisconsin–Madison's leadership in organic agriculture, highlighting that the state is home to nearly 1,500 organic farms and 245,000 acres of certified organic land. She acknowledged and thanked the Clif Bar Foundation and Organic Valley for their pivotal support in advancing organic work at UW–Madison, as well as the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) and congressional leaders—some of whom were in attendance—for their crucial roles in supporting the organic sector. Reflecting on the progress made since the last Harvest of Ideas conference in 2018, Dean Gillaspy noted that organic agriculture has experienced both growth and challenges. She highlighted the expansion of research, outreach, and educational efforts in organic farming at UW–Madison during that time.

One particularly striking statistic she shared was from the 2022 USDA Agricultural Census: the average age of organic farmers in Wisconsin is 48, compared to the national average of 58. This suggests that organic agriculture is attracting a younger generation of farmers, a promising trend amid national concerns over an aging farming population. Consumer demand for organic products continues to grow, with U.S. organic sales reaching a record $70 billion annually. Still, she acknowledged that the organic sector faces significant challenges, including drought, wildfires, flooding, and other extreme weather events. Dean Gillaspy concluded by thanking participants for their commitment to tackling these global issues and emphasized the importance of rural communities—home to many farmers and agricultural producers—who face ongoing economic and demographic hardships. She affirmed that as a land-grant institution, UW–Madison is dedicated to finding practical, science-based solutions to these challenges. The university's research, combined with global collaboration and shared experiences from this conference, has the power to drive future organic policy and support the broader adoption of practices that protect land, livestock, water, air, and community health—fulfilling the land-grant mission in action.



Keynote address by Mathew Dillon

Co-CEO of Organic Trade Association

Matt Dillon delivered an impassioned and reflective address. He serves as the Co-CEO at the Organic Trade Association (OTA). OTA represents organic organizations and businesses (seed companies, farmers, retailers, aggregate supply chains, brands, and manufacturers). They work on advocacy in DC, regulatory engagement, international trade development, and research on consumers and markets. And they also have a sister nonprofit, the Organic Center, that focuses on the science of organic. He stated that his address would contain more questions than answers but trusts the wisdom of the conference participants to start to answer the questions. With the impetus of the conference to discuss how organic agriculture can serve as a solution to global challenges, with emphasis on the need in research and policy to build continued momentum. Such research may include initiatives to improve small farmer well-being and thriving rural communities; how to increase grass-based acreage, the intersection of soil health and nutrient density, the urgency to invest in the next generation of organic leaders (farmers, entrepreneurs, advocates, and consumers); and how to address greenhouse gas emissions and climate issues.

Dillon then states that he would have given a PowerPoint presentation outlining the positive outcomes thus far in organic agriculture, like how trusted the USDA organic label is, more millennials and Gen Z outpacing their parents and grandparents in buying organic, the growth in organic sales going over $70 billion, and the historic investment USDA made in 2022-2024 in farmer outreach, technical assistance, infrastructure development, and organic market support. All of which provides him with great optimism about the public interest in organic. However, he recognizes the global cultural and political moment we are in with potential roadblocks that we may be facing in building the organic momentum. He talks about how universities and nonprofit organizations will need a bigger infusion of private capital and philanthropic dollars to make up for the cuts the US is proposing and doing.

Dillon called upon the participants to be both aspirational and realistic. With most people believing the desirable outcome being more organic acres produced with practices that continue to evolve and improve natural resource management and equitable distribution of benefits. He questions whether this can occur fast enough amongst the global challenges.

He believes in articulating what is desirable and then assessing its feasibility and viability. For instance, he asks if we are trying to solve these challenges? Or are we trying to do less harm by mitigating the extraction and exploitation of people and planet.
Is it a viable goal to repair damage or to prepare for the acceleration of damage? He questions whether we should be putting our efforts into regenerative agriculture, with small a net positive state of farming both economically and ecologically? What should be our goal, small number of acres reaching an optimal state? Or should we try to mitigate the extraction and exploitation on as many acres as we can? Or do we aim for both? These are the current tensions we have.
He then encouraged the participants to lean into these tensions (in the room, in communities, in the organic movement, and in ourselves).
Then he questions whether the organic movement as being a movement or an industry? Is organic a marketing term? It is housed at the Agricultural Marketing Service of USDA, or is it a scientific system of standards in agricultural production? Is it primarily attempting to serve the farmer or the consumer? Can we serve both? Paying the farmer more but expanding access to consumers? What are our priorities? It's tough to advocate or invest in solutions without clear priorities, including knowing who the primary audience is that we are trying to serve. He then asks who we should be serving. His answer is, "we should be serving the next generation." The people we may never know.

> *"They are consumers, farmers, entrepreneurs, activists, policy makers, eaters, even marketers. The details we debate here and the decisions we make going forward should be passionately and obsessively focused on how we leave our soil, our water, our seed, our knowledge, our biodiversity, our economy and dare I say, our body politic for the next generation."*

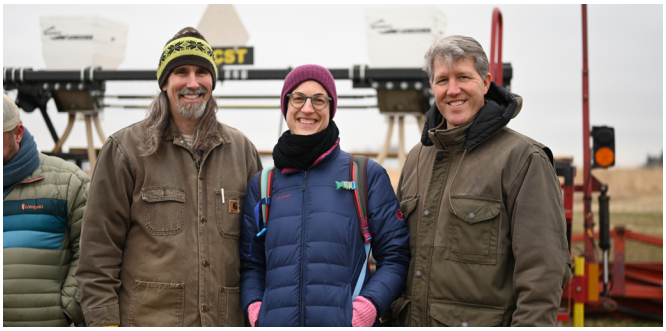
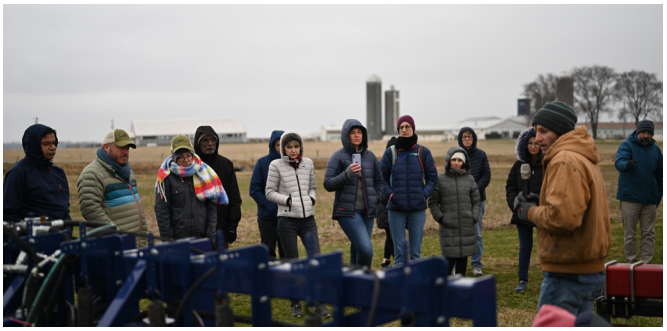
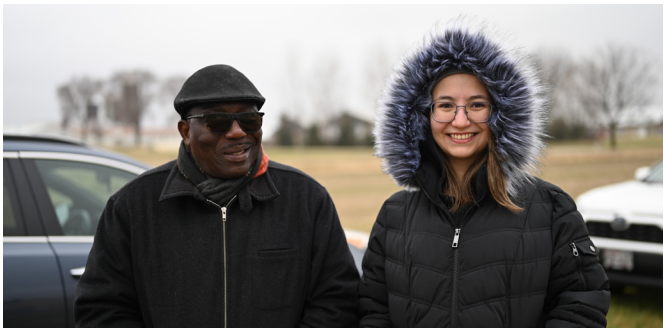
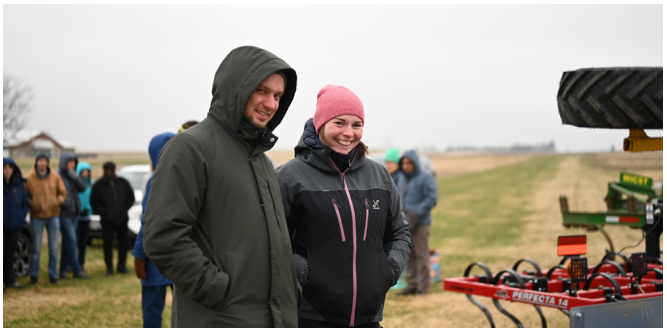
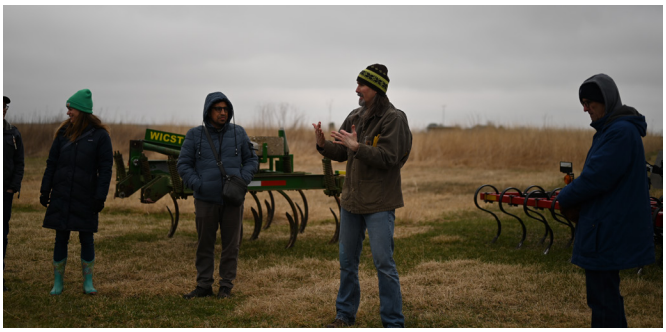
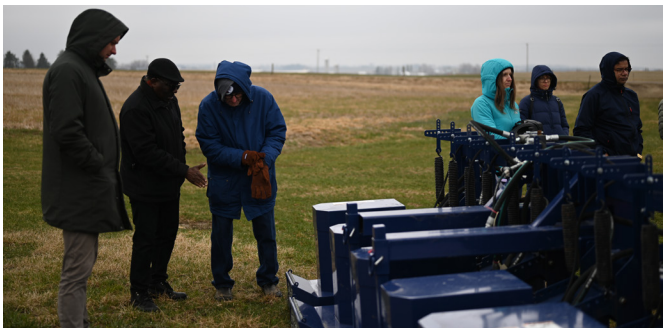
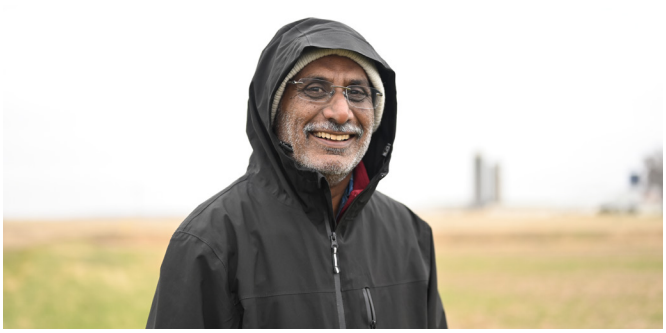
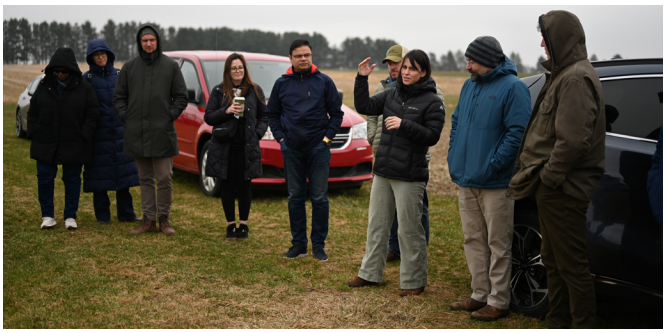
Doing this, he says, requires us to ask what the world might look like in 50 years and work backwards from there. He shares his ideas of what the immediate, midterm, and long-term priorities should be.
Immediately, it is essential to keep the lights on at the USDA that helps the organic sector grow with integrity, ongoing federal support for organic research programs, and provide resources for graduate students. And the lights need to be kept on at the farm level through improved pricing, and better technical support to help with competitive yields. And we need farmers to have a fair playing field with less fraud, both domestic and abroad. He mentions that OTA is working on moving these immediate steps forward through the new Farm Bill, appropriations, and advocacy.

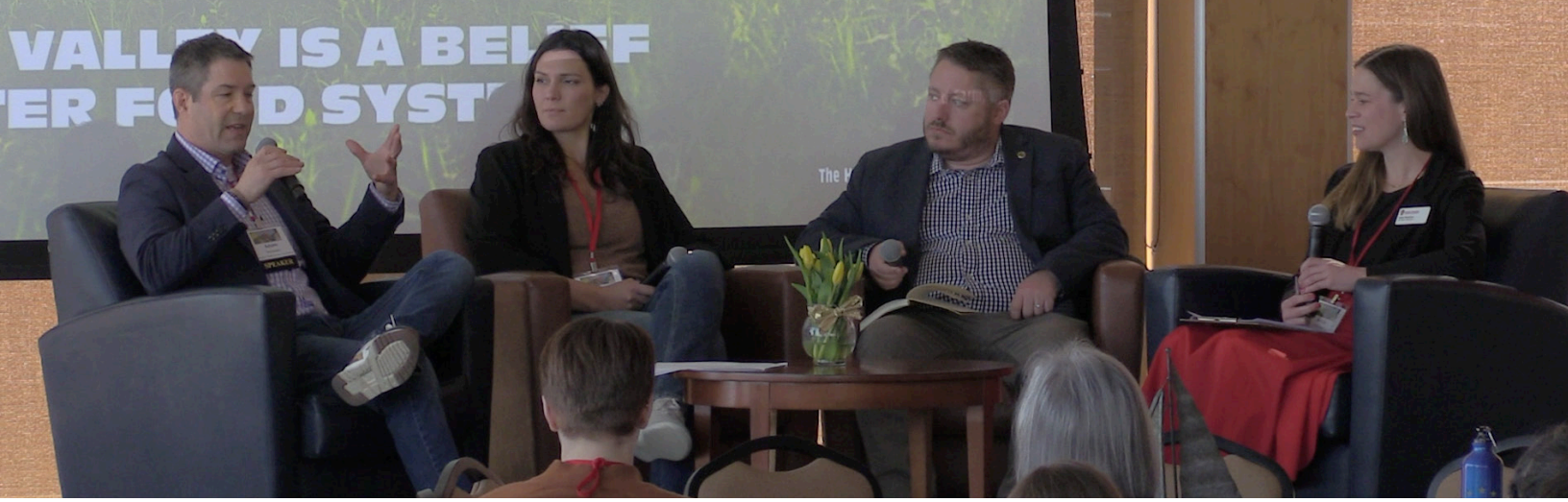
Dillon described that the midterm priorities should entail champions in all sectors, political (both Republican and Democratic), public private partnership (federal, state, and university level), and local investors in philanthropy. Champions with advocacy and funding with the understanding that the voluntary regulations of organic provide farmers and businesses with the opportunity to opt in to what consumers want.

And he said we need to finally reflect on and rethink our research priorities. There is need for organic research to be less "bespoke". A need to shift our priorities from what looks like first world problem research about a new colored carrot to solving the biggest challenges organic farmers face infertility, weed management and disease prevention, etc. The need to challenge our thinking with what is desirable, feasible and viable.

He stated that he does not have a clear vision of policy or science of what is needed for long-term priorities and generational thinking but recognizes that the conference participants collectively have that vision. At OTA, they say that "we are stronger together". Which means they lean into each other's differences and perspectives, but don't lose their humanity or shared purpose when doing so. He challenges us to continue to work together for a less exploitive and extractive agricultural future.

Field Day: Arlington Agricultural Research Station, Arlington, WI. April 10, 2025.



Panel 1: U.S. Organic Policies that are Working

Panel experts: ***Tom Chapman,*** *Co-CEO of Organic Trade Association,* ***Nicole Atchison,*** *CEO, PURIS, and* ***Adam Warthesen,*** *VP of Government & Industry Affairs, Organic Valley/CROPP Cooperative.* ***Moderator:*** ***Katie Peterman***

TOM CHAPMAN, Organic Trade Association

Tom Chapman, Co-CEO of the Organic Trade Association (OTA), began by acknowledging the impressive strides made in the organic movement over the last few decades. Reflecting on the early days, he noted that when the Organic Foods Production Act passed in 1990, organic sales were around $1 billion. Even though it took the USDA twelve years to fully implement the program, sales grew to $6 billion by 2002. With the 2004 launch of the National Organic Program (NOP) and the introduction of the USDA Organic Seal, sales climbed to $26 billion, eventually growing to $60 billion over the next decade. Now in 2024, organic sales have reached an astounding $71.5 billion. Chapman emphasized the significance of this growth—13.4% compound annual growth rate (CAGR), which is more than four times that of total food sales. This growth, he said, is a testament to the dedication and hard work of farmers, businesses, and advocates both domestically and globally.

Chapman attributes much of this success to what he calls the "secret sauce" of organic: the trusted USDA Organic Seal. Consumers seek out this seal and are willing to pay for the value it represents. "Garnering trust of consumers is an amazing feat," he said. He described the seal as a policy success story—one that is functioning well and needs to be protected. That is why, he argued, it should be our top priority to preserve the integrity of the seal and ensure that the National Organic Program remains adequately staffed and funded. Trust in the label translates to a strong foundation for consumer confidence, which in turn drives continued market growth.

The NOP has not only built consumer trust but also created a stable environment for farmers and businesses to invest in organic production. Chapman highlighted the strength of the standards themselves: they are rigorous yet flexible, accommodating farms of all sizes, even allowing split operations to participate in both organic and conventional markets. These stable standards discourage misleading claims (like "natural"), facilitate domestic and international trade, and allow organic to coexist within U.S. agricultural systems. He stressed that this success occurred while conventional agriculture was prioritizing output and consolidation. Organic, meanwhile, delivered environmental benefits, business integrity, and steady marketplace expansion.

Still, Chapman acknowledged that challenges remain. Organic continues to over-index in specialty crops, dairy, poultry, and eggs, but it underperforms in commodities like grains, sugar, and beef. This imbalance contributes to the U.S. lagging behind other countries in organic acreage. It also underscores a major issue: gaps in infrastructure and supply chains—especially in the middle segments such as processing, storage, and logistics. "We need to find ways to invest in this infrastructure to ensure folks have access to markets and brands and businesses have access to the ingredients that they need to sell," he urged. According to OTA surveys, businesses cite access to ingredients and profit

margins as key concerns. The USDA's Organic Market Development Grant is a promising start, and Chapman expressed hope for continued investment in these areas.

He also flagged international trade as a policy frontier. On one hand, international organic trade has helped meet growing consumer demand. On the other, it has enabled U.S. agriculture to fall behind global counterparts. As a result, there's a pressing need to close the gap—building out domestic capacity while still supporting trade. Chapman also reinforced the call, echoed earlier by Matt Dillon, to continue supporting organic research. As public research funding faces uncertainty, private funding may become essential. He concluded by calling for a new policy focus—connecting organic agriculture with rural economic development. "There are currently no policies with USDA that reflect the advantages and opportunities organic brings to rural economies," he said. Chapman stressed that organic has the potential to transform and sustain these communities, and it's time federal policy recognized and supported that.

NICOLE ATCHISON, PURIS

Nicole opened her session by engaging the audience, asking each participant to identify which part of the supply chain they represented, whether farmer, processor, academic or research sector, retail brand, Consumer Packaged Goods (CPG), certifier, or government agency. She explained that she co-leads her family business, PURIS, which sits squarely in the middle of the supply chain as a food ingredient processor.

PURIS is a family-owned business based in Iowa, founded 40 years ago by Nicole's father, a plant breeder with a big vision. "He believed that we should make plants that people want to eat, and we should make them taste amazing—and that starts at the seed level." He began with food-grade soybeans, aiming to become a soy protein manufacturer. Over time, they slowly and deliberately invested in infrastructure to support this vision—building a breeding program, creating a network of growers, and developing the supply chain capacity to process those seeds. But despite the progress, PURIS found itself unable to compete with larger companies in the organic soy protein isolate market. Nicole recalled the tough moment: "We realized we either had to pivot, or we were going to die as a company."

Fortunately, they had already laid the groundwork for a new direction. Nicole's father had started breeding yellow peas over a decade earlier. The company made the bold decision to pivot into pea protein, which at the time was largely being imported from China and France. They believed they could create a better, competitive product—and they did. Today, PURIS is one of the largest manufacturers of pea protein in North America. They operate a vertically integrated supply chain, contracting with growers to produce non-GMO and organic food-grade crops—including soybeans, pulses, and yellow fields primarily in the Upper Midwest. Their headquarters is in Minneapolis, with facilities in western Minnesota and central South Dakota, and the breeding team still operates out of Iowa.

Nicole also spoke about the USDA's Strengthening Organic Enforcement (SOE) rule, calling it a "key policy" for businesses like PURIS. She emphasized how important it is to protect the integrity of the U.S. organic market, especially from fraudulent imports. "Working with U.S. growers, really understanding and protecting the industry from fraudulent organic imports is something that has been of paramount importance to us," she said. Nicole also shared her recent experience meeting with staff from the National Organic Program (NOP), saying she was "super impressed" by their level of commitment to supporting the U.S. organic sector.

ADAM WARTHESEN, Organic Valley

Adam works in Government Affairs for Organic Valley, a farmer-owned cooperative headquartered in Wisconsin. Organic Valley aggregates and sells products across five main pools—dairy, eggs, meat, produce, and feed. The co-op is made up of about 1,600 farm members, and roughly 1,400 of those are dairy farms. That's a big deal, considering there are only about 2,780 certified organic dairy farms in the entire U.S.—which means Organic Valley represents about 52–53% of all organic dairies in the country. Most of these are small family farms, averaging around 70 cows. Their member farms are located across 29 states, primarily in the northern tier from Maine to Washington. Adam emphasized

that Organic Valley is a unique kind of cooperative: they collect raw materials from their farmer-owners and partner with around 80 co-manufacturers across the country to make their products. They only own three brick-and-mortar facilities—two in Wisconsin and one in McMinnville, Oregon—and have around 900 employees. As Adam put it, "Organic Valley, you know, is more than a brand. It's really about a belief system and a better food."

In terms of business, Adam shared that Organic Valley's dairy pool has had three strong years, meeting their profitability goals and increasing the pay price for their farmer-members, which now ranges between $32 and $38 per hundredweight. They've seen exciting growth as well, with about 130 new farms joining the cooperative in the last year and another 76 planning to come on board in the next couple of years. And they're still actively looking for more milk. To get their products into the hands of more consumers, they're focusing heavily on infrastructure investments—doing what they can to give people the opportunity to choose organic.

On the policy front, Organic Valley is highly engaged in advocacy work. They are active members of the Organic Trade Association (OTA), International Dairy Foods Association (IDFA), National Sustainable Agriculture Coalition (NSAC), and National Cooperative Business Association (NCBA CLUSA). One of the biggest issues they're tackling is federal milk pricing, which Adam said costs them roughly $20 million annually without any return benefit. They're pushing USDA to address it and see potential in reforms from the Department of Government Efficiency (DOGE). Other key priorities include strengthening organic enforcement, implementing organic livestock and poultry practices, and fixing the origin of livestock loophole. A core concern from their farmers is the time, cost, and paperwork burden that comes with staying certified organic. That's something Adam is working on through the co-op's trade groups—trying to find a workable solution that keeps organic integrity strong without making it unsustainable for farmers to stay in the game.

COMMON THEMES FOR PANEL 1

- **Trust in the USDA Organic Seal is foundational to market success.**
- **Infrastructure gaps (processing, storage, logistics) remain a bottleneck.**
- **Domestic supply chains must be strengthened to reduce reliance on imports.**
- **Policy and enforcement (especially SOE) are critical to maintaining market integrity.**
- **Organic is a tool for rural economic development and farmer viability.**
- **Certifier burdens, access to ingredients, and milk pricing reform are top concerns.**
- **Research and innovation in seed, breeding, and processing help differentiate U.S. organic.**

ACTION ITEMS FOR PANEL 1

1. Invest in Mid-Supply Chain Infrastructure
   Storage, co-manufacturing, ingredient sourcing, and logistics are urgently needed to keep pace with demand.
2. Protect & Promote the Organic Seal
   Advocate for USDA's National Organic Program staffing and funding. Prevent fraudulent imports through strong SOE enforcement.
3. Reform Federal Milk Pricing
   Support efforts to modernize outdated pricing systems that hurt organic dairy viability.
4. Expand Domestic Production
   Reduce dependency on imported organic grains and pulses. Incentivize breeding, growing, and processing domestically.
5. Support Organic Farmers
   Streamline certification paperwork. Invest in technical assistance and cost-share programs to keep family farms in the organic system.
6. Prioritize Public & Private Research
   Advocate for dedicated funding in seed genetics, cropping systems, climate adaptation, and supply chain efficiency.

Panel 1 – Discussion

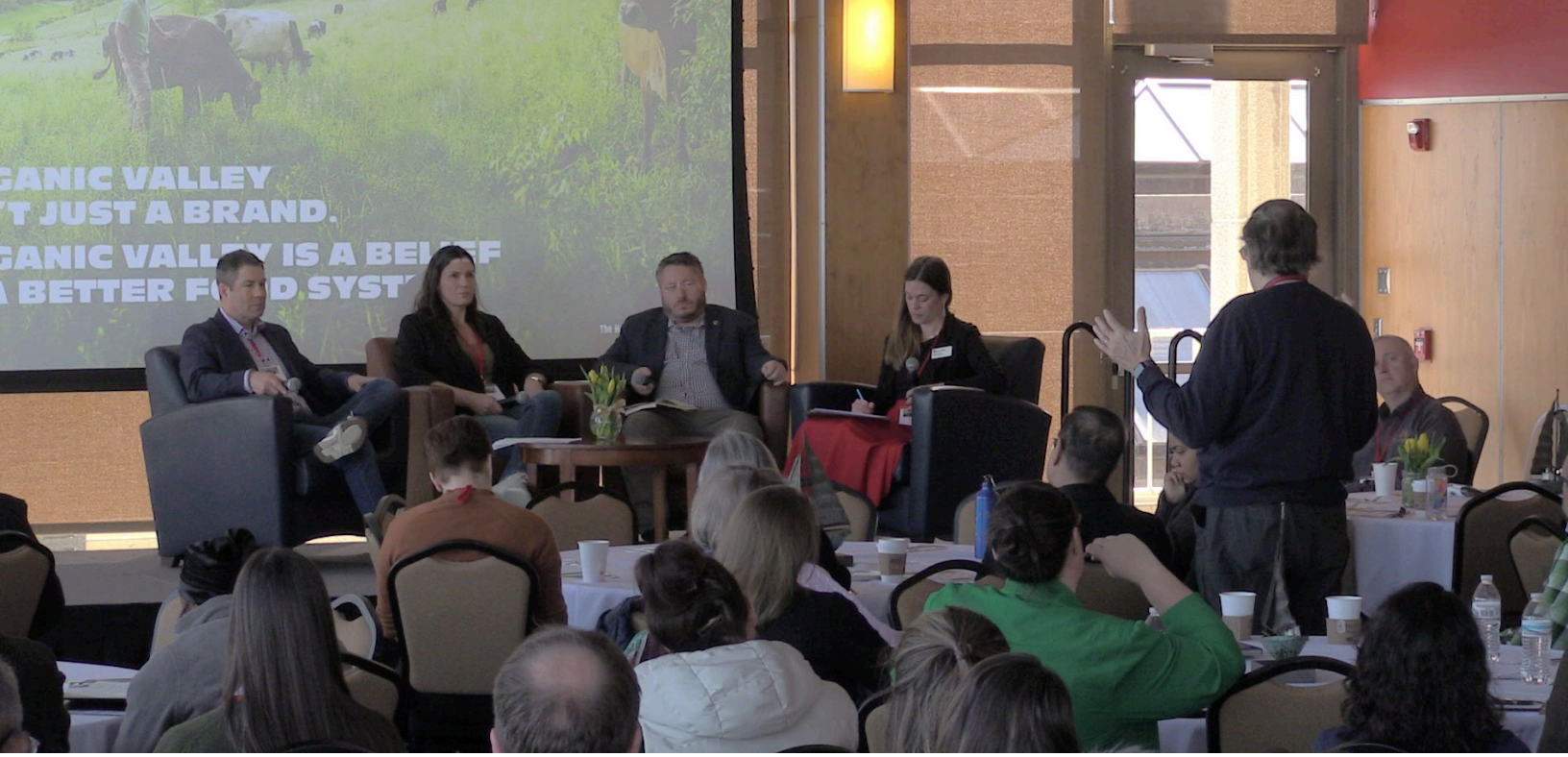
***Question 1:** What resources do you and your organizations and your businesses need to succeed in the future? (with respect to U.S. policy)*

Adam Warthesen - The biggest concern is about where the National Organic Program (NOP) fits within the broader regulatory landscape of the federal government. Organic is a voluntary system—for farmers, for businesses, and for consumers. That makes it unique. Because of that, we've got to ensure it continues to have strong funding, oversight, consistent standards development, and a reliable accreditation process. Without that support, the whole system is at risk.

Nicole Atchison - She realized that her most powerful policy tool was her own voice. When PURIS found that hiring a lobbyist was out of reach, she leaned into direct engagement with policymakers—and discovered that's exactly what they wanted: to hear directly from business owners and constituents. With support from the Organic Trade Association (OTA) and USA Pulses, she's gained a stronger understanding of the policy space and how to navigate it.

She emphasized the importance of continued investment in rural, mid-supply chain infrastructure, particularly for small, family-run organic operations that are vital to the organic grain supply. Without the right infrastructure, she explained, it becomes incredibly difficult to get products to market. Nicole underscored the value of programs like the Organic Market Development Grant, noting:

"...it would be great for rural communities and for just keeping that resiliency in the middle of supply chain infrastructure, because if that infrastructure goes away, it makes it that much harder for the growers to get their grain to market—because there's nowhere to process it. And I think that is kind of like the unsexy piece of the middle that people don't talk about, but that's a critical piece."



Tom Chapman - To echo Nicole's point, one of the biggest hidden costs in organic isn't certification or paperwork—it's the lack of dedicated infrastructure. Most people understand the regulatory burden, but what often gets overlooked is how organic products must be kept separate in a system that was built for conventional. Conventional infrastructure is designed for high-volume, high-efficiency throughput. So when they switch over to process organics, they must stop, clean equipment, manage separate storage like bins and silos, and adapt systems to handle smaller volumes. That downtime and those adjustments all add costs—and those costs aren't shared with conventional. Organic bears them alone.

This reality eats into farmers' already thin margins and drives up prices for consumers. If we had infrastructure that was purpose-built or right-sized for organic—especially in the middle of the supply chain—it would reduce those costs and make organic more viable economically. That's the kind of investment that could really shift the landscape.

Adam Warthesen – Agrees with Nicole and Tom about right-sizing the infrastructure. He gave an example of a company in the Pacific Northwest that is building a facility to produce dry milk. They project that their minimum daily run would be 8 million pounds of milk. He stated that if they gather all the Organic Valley milk for most of the year, they could maybe get one to two days of processing at that capacity. So right sizing the investments in organic infrastructure is right on.

Tom Chapman – Tom circled back to the question of what resources they need. As a trade association they develop connections with members of Congress, but what they also need is for their members to show up and start making connections with the new members of Congress, as their long-time champions in Congress have either retired or did not win their last election. So, these new and old members of Congress really need to hear from the organic community and share why they should care, and what it economically means for both organic farmers and businesses.

***Question 2:** How does OTA, and the other speakers, envision resolving some of the deep conflicts within the organic community to move forward stronger together, for example the hydroponic regulations?*

Tom Chapman –He reiterated what Matt Dillion said earlier, we need to come together and work together. Recognizing that the areas we can work together are vast and large and the areas that we may not see eye-to-eye, both in terms of different ideas and strategies of outcomes or different priorities – which are two different

things. OTA may not work on all requested issues, not because they are not supportive, but it just isn't a top priority. They spent the last few years working more collaboratively with the Organic Farmers Associations and the National Organic Coalition garnering support from 1400 operations. Regarding the hydroponic question. OTA does not take a strong stance on hydroponics. The groups advocating for hydroponics to be included in the organic certification, are not affiliated with OTA. They have few members farming in container production. Currently, it is not a priority for OTA, however OTA would act on it, if their members directed them to do so. He states that there was a missed opportunity in 2017 when the National Organic Standards Board failed to make a viable recommendation on the issue. Since then, court rulings have decided that hydroponics are allowed under the Organic Foods Protection Act, and to change that ruling would require a legislative amendment to the Act via the Farm Bill.

Adam Warthesen – Says he feels that the organic community is working together more now than it has in the past. He questions, who else can we bring to the table to make the organic movement stronger? One potential ally may be the Make America Healthy Again (MAHA) movement, as these people care about food but haven't had a strong or active voice in the organic space. His key priority is trying to figure out how to connect with them, since they seem to have influence with current leadership at the USDA and Health and Human Services.

Nicole Atchison – Draws a parallel between the hydroponic debate and the juxtaposition on the organic industry growing off imports, versus the domestic industry. Where the domestic industry felt left behind. And for PURIS, they felt like they were screaming again into oblivion like no one cared. However, now with new leadership at OTA with Tom and Matthew, she feels a shift and a new opportunity for the organic community to come together. She ends with encouraging others to reach out to OTA, if they haven't done so already.

***Question 3:** How do you all see the newly imposed tariffs impacting on the organic industry, and what are the opportunities for future collaborations or the industry to work together to help face those challenges?*

Adam Warthesen – At Organic Valley, we are domestically focused. However, these tariffs are disruptive and somewhat unpredictable. It appears the approach of this administration is to flood the zone – reach far, then settle back and hopefully settle back ahead of where you thought you were going to land. He thinks the administration has been successful to some degree with this approach. Although Organic Valley being domestically focused, their farmers may feel the pressure with the tariffs on Canada for equipment and repairs on their milking machines. With the administration still new, he doesn't know how it will all play out.

Nicole Atchison – For her it all depends on the commodity. For their peas, they are similar to Organic Valley, where PURIS is very domestic, and thus insulated from the tariff pieces. Their market is primarily in the United States, so if the USMCA (United States-Mexico-Canada Agreement), continues to be exempted from tariffs then there would be minimal impact to them and mostly positive. She thinks for organic soybean grower it would be particularly beneficial for them, as last Trump administration their tariffs domestic prices for soybeans skyrocketed. She reflects that for all the soybeans that the U.S. produces we are a net import of organic soy products. She sees this as an opportunity to get more conventional growers to make the transition to organic soybeans. However, if the organic market continues to fluctuate up and down, it will be hard for a farmer to make that commitment. So having some stability and predictability in the market is what growers need. As a processor, its terrifying, without predictability as your prices could suddenly double. Volatility in the market is very difficult to manage, especially when you can't hedge it with futures in the organic market. Having risk mitigation tools are great, unfortunately they are lacking in the middle of the supply chain.

Tom Chapman – He highlights that market interventions like tariffs create both winners and losers. With the current tariffs the imported goods, such as coffee and tea, organic sugar, cacao, and pea protein are becoming more expensive. Which may result in people buying less of those items, which in term would impact related domestic industries like dairy and sweetened products. Previously, during the last round of tariffs it became

difficult for dairy farmers due to shortages of feed and prices increased. It's the cyclical nature of tariffs and their unpredictability that creates instability. "...stability is key. We need to make sure that whatever our future policies are and the winners and losers we're seeking to make from them, we keep it stable, and that's part of the challenge, I think, right now, is in the absence of stability. I think a lot of businesses and farmers, I imagine, are somewhat stuck in paralysis because they don't know what to do next."

***Question 4:** With more consolidation in the organic industry, what are some policies that we could focus on to help with the challenges we are facing with consolidation?*

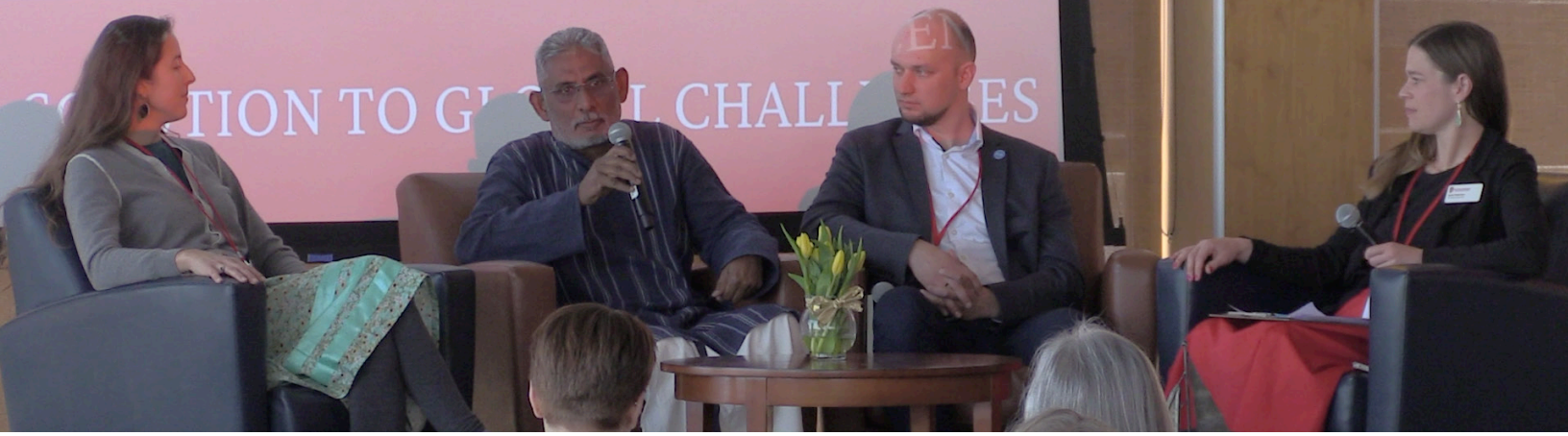
Tom Chapman – He acknowledges that consolidation in the organic sector is a real and growing concern. Twenty years ago, there were numerous independent organic brands—now that number is down to just a handful. On one hand, the integration of organic into major retail and food companies has helped bring organic into the mainstream, making it more widely available and recognized. But on the other hand, it's created real challenges for small farms trying to stay afloat.

He sees opportunity in cooperative models and regional food system investments to help shift the balance. Programs like the Organic Market Development Grants are key—they support right-sized farms and infrastructure that match the needs of smaller producers. That kind of investment creates space for more farmers to actively participate in the organic supply chain. Ultimately, the goal is to build a more balanced system—one that supports a diversity of farm sizes and keeps small-scale operations viable.

Nicole Atchison – She discusses the difficulty being a small, family run grain processor in rural America. If they barely break even and a big company comes and wants to consolidate their enterprise, it seems appealing yet often ends with closures due to misalignment with big corporate supply chains. She believes the Organic Market Development grant that invests in rural infrastructure could prove the alternative to keeping these businesses as family businesses that can be passed on to future generations or ESOP (Employee Stock Ownership Plan). With the goal of creating sustainable, profitable alternatives to consolidation, which currently remain limited.

Tom Chapman – Tom adds that training the next generation of leaders specifically in organic business practices is crucial, as organic operates differently from conventional agriculture. He emphasizes the importance of equipping future leaders to sustain and integrate into organic businesses without compromising the organic integrity.

Adam Warthesen – He remembers during the Obama administration an initiative to consolidate the livestock sector and processing sector, which had very little impact. Generally, government intervention to deal with consolidation has been unsuccessful, unless they invest in building the middle of the supply chain. Currently, Organic Valley is trying to find the next generation of dairy farmers. With many current farmers getting older, they are focusing on succession plans with their farmers and finding resources to help the next generation become dairy farmers of the future, and Organic Valley to continue to be the purchase choice for consumers.



Panel 2. Organics as a Solution to Global Challenges

Panel experts: ***Mathew John,*** *President, IFOAM Organics Asia,* ***Lea Zeise (Kak^húni),*** *Assistant Director of Office of Environmental Resource Management, United South and Eastern Tribes,* ***Rudolfs Pulkstenis,*** *Vice-President, European Council of Young Farmers.*
Moderator: ***Katie Peterman,*** *Program Manager, UW Organic Collaborative*

MATHEW JOHN, President, IFOAM Organics Asia

Mathew John introduced himself as a representative of both IFOAM Asia (International Federation of Organic Agriculture Movements) and the Keystone Foundation, which he co-founded. He's spent the last 30 years working with indigenous communities in southern India—his home—specifically in the Nilgiri mountains. While Asia is incredibly vast, stretching from Japan to the Middle East, his presentation focused on broad themes across the region, with more specific stories from India. He reminded us that India and China alone make up nearly half the world's population, and while cultures and agricultural traditions are wildly diverse, many of the challenges they face are shared.

He reflected on how fascinating it is to hear the term "organic" used as if it's new—when in reality, organic practices have been a way of life in India for 4,000 to 5,000 years. Over the last century, there's been an effort to define what organic means culturally in India and throughout Asia. In India, it's deeply tied to the knowledge systems and traditions of indigenous communities.

Through the Keystone Foundation, Mathew works in the Nilgiri Biosphere Reserve—a region of over 5,000 square kilometers, home to about 200,000 people across 30 indigenous communities, each with its own language, agricultural systems, and cultural practices. What's unique is the way these communities coexist—without conflict, and with rich, symbiotic relationships.

He highlighted three key economies within India:

1. **The Forest Economy** – Unregulated and often exploitative, this sector involves the harvesting of non-timber forest products—many of which are rare or endangered—and is largely driven by women, who make up 70% of the workforce. These products, worth over $250 billion, often leave local economies without recognition or value return. Mathew has worked to flip this script—by telling the stories behind these products and the communities that harvest them. He shared a striking example of honey gatherers who rappel 200–300 feet down cliffs in a traditional, once-a-year ritual. By building identity, branding, and storytelling into these products, communities have been able to secure better prices and recognition.

2. **The Agricultural Economy** – Although over half of India's population—around 700 million people—work in agriculture, it contributes only about 15–20% of the country's GDP. Much of this farming happens on drylands, and many farmers continue to practice traditional organic methods that go back generations.

3. **The Labor and Plantation Economy** – In mountain regions like the Nilgiris, most people work on tea or vegetable plantations. Wages are shockingly low—just $3–4 per day—so many migrate to cities in search of work. Here, Mathew emphasized the importance of co-creating resilient systems: working with other NGOs to build co-ops and fair trade models that connect these communities to better markets while preserving their cultural identity.

At the regional level, Mathew's work with IFOAM Asia brings together 180 member organizations. Two key subgroups are particularly active: one focuses on working with municipalities committed to going organic. These local governments are critical—they can implement long-term changes and draw young people back into agriculture. The other subgroup fosters "organic districts"—a concept that came out of collaboration between Asia and Europe. These districts are places where small-scale, local organic initiatives can connect and scale through broader platforms, sharing learnings and deepening impact.

He closed by saying that in other parts of the world, agriculture is often discussed in terms of single, dominant sectors. But in Asia, it's more like a basket, there is no one-size-fits-all solution. You need multiple, interconnected strategies: building local markets, preserving seed sovereignty, conserving biodiversity, and recognizing the complex layers that make up the organic movement.

RUDOLFS PULKSTENIS, VP, European Council of Young Farmers

Rudolfs shared his experience as a young farmer from Latvia, Eastern Europe, managing a 150-hectare (370-acre) farm where he grows winter rye, oats, buckwheat, and clover. He has been farming for eight years, having transitioned from a previous career in banking. Rudolfs reflected on how we often "live in bubbles"—whether that's geographic bubbles like Europe, Asia, and America, or smaller ones within countries where policymakers in cities are disconnected from farmers in rural areas.

He currently serves as Vice-President of the Council of European Young Farmers, which represents 33 organizations across 22 European countries, spanning Eastern, Western, Northern, and Mediterranean regions. Their main focus is generational renewal, a pressing concern given that less than 12% of European farmers are under 40. Europe needs young people to enter farming across all sectors—organic, conventional, dairy, livestock, and cereals.

Beyond the challenge of attracting young farmers, Rudolfs identified several key issues:

1. **Access to land:** Especially critical for organic farmers who require long-term investments in soil health. Short-term leases make it risky to commit to sustainable practices when benefits may take years to materialize. The Council is lobbying for credit programs to help farmers purchase land.
2. **Access to finance:** There is a massive €60 billion funding gap for European farmers overall, with €22 billion specifically lacking for young farmers. This financial shortfall makes it difficult to start or take over farms. The Council is exploring risk-sharing solutions, though progress will take time.
3. **Organic value chains:** Organic farmers often receive unfair market returns, particularly in Eastern Europe, where organic milk prices may barely surpass—or sometimes fall below—conventional prices. Efforts are underway to improve farmer incomes.
4. **Infrastructure shortages:** Even in places with significant organic acreage (like Latvia's 15.1%), processing and distribution capacity remain insufficient to support growth.
5. **Common definitions:** There is a lack of shared understanding around terms like regenerative and organic farming, which complicates policy and market clarity.
6. **Access to knowledge and skills:** University curricula are often outdated, leading young farmers to rely heavily on social media and YouTube for practical, modern farming techniques.
7. **Rural decline:** Rural areas have become less attractive, with ongoing urban migration. While COVID-19 temporarily reversed this trend, more needs to be done to revitalize rural communities.

8. **Policy and support gaps:** Programs like Eco-Schemes exist to cover conservation practices such as buffer zones and crop rotation, but they only reimburse costs—not the additional effort involved. Policies also tend to change every 5–7 years, making long-term planning difficult. Rudolfs advocates for more stable policies with 10- to 20-year horizons to better support farming sectors.

9. **Success stories:** Some regions, like parts of France and Italy, have strong local food supply chains. In Latvia, 10% of school food procurement must be organic, and the district of Talsi is aiming for 100% organic—a positive sign for the organic movement.

Rudolfs concluded on an optimistic note, expressing hope for the continued growth of organic farming in both Europe and the United States.

LEA ZEISE (KAK^HÚNI), Assistant Director of Office of Environmental Resource Management, United South and Eastern Tribes

Lea (Oneida name Kak^húni) is from the Oneida Nation, wolf clan presented on Indigenous Approaches and Solutions to Organic Agriculture. She also works for the United South and Eastern Tribes in food sovereignty, climate adaptation, water and wastewater sanitation, and lead removal from schools. This organization works in 33 federally recognized tribes between Maine and Texas, with some being part of the Haudenosaunee Confederacy. Although she has many jobs, for this presentation she talked from the Ohe·láku perspective. Oneida Nation was originally from New York region, before they were forced to relocate to Wisconsin (before it was a state in 1838).

She states that it is difficult to figure out what to say in these meetings, as indigenous people walk with one foot in two canoes – because trying to balance her indigenous teachings and self with the western industrialize, capitalistic, patriarchal world, which is not their teachings. The legacy of Haudenosaunee women is that they all come from one woman who fell from the sky, so women play an important role in their creation story. Traditionally, they grow their food in what they call Tsyunhehkwa ("life sustenance" in Oneida, pronounced Joon-heh-kwa) with corn, squash, and beans together making up three sisters. Other elements of their Tsyunhehkwa are sunflowers, orchards, berries, etc. It's a food system itself. She likes to call indigenous the "hipsters" of regenerative agriculture as they were doing it before it became cool.

She talked about her ancestors' journey from New York to Wisconsin and how they brought seeds with them. She is thankful that they decided that first winter not to eat the seeds but saved them for growing their traditional foods. The seeds are living beings, part of their legacy and journey. She feels that they are not creating or innovating anything new with how they grow food, they are just putting it into a modern context.

She then explains how the Ohe·láku is a cooperative of Oneida families that grows primarily Tuscarora white corn on the Oneida reservation. As a community they plant the corn together, harvest it, husk it and braid it for drying and storage. Learning about soil health and climate adaptation. Teaching the younger generations about their agricultural and cultural legacy, preserving their traditions. So, by reconnecting with the seeds, land, and their community they remember how to think outside the nuclear family, the individual, individualistic concepts they were assimilated into - building community and co-reliance, instead of self-reliance.

She explains also the importance of seed saving and keeping records of which seeds did best during drought years vs really wet years. Other agricultural practices they are using are adapting the Menominee ridge tillage system for their fields. And working with UW-Madison to study cover crops both as a rotation with corn but also between rows of corn. This rotation, brings back traditional concepts of rotating around villages to allow soil and resources to regenerate.

Some of the corn that they grow turn into roasted corn mush flour that is good as a hot cereal. They are also scaling up their production with right-sized equipment and infrastructure to be able to supply

their Tribal Elder Food Box program with corn mush throughout Wisconsin. The Tribal Elder Food Box program was funded largely by the Local Food Purchase Assistance Program (LFPA), which the current administration just cancelled. So, she asks the conference participants to advocate for refunding this LFPA program as well as for the Native Farm Bill Coalition efforts.

She says that she is excited to hear others talk about planning for future generations and wants to acknowledge that indigenous perspective and foundational teachings and philosophy has been to think about seven generation ahead.

Across the Haudenosaunee Confederacy they grow 33 different varieties of traditional corn along with their squash and beans. They started making connections with other indigenous communities in Ecuador to do a cultural exchange and found that they grow their three sisters and their poly culture field the same way and are making all their traditional foods and trying to figure out how to live this good way in this modern world.

She closes with a story of Sugar Bear, who started the organic farm on the Oneida reservation.

> *"You know, he was just doing what we've always done our traditional ways. And he's pretty crass, so you have to forgive me what he said those folks from UW came up here and they told me I was organic. And I said, "What the f** is organic?" It's so core to our being and our in our identity that we don't have a word for it in our language. We don't have to make all these rules about it"*

COMMON THEMES FOR PANEL 2

1. **Rooted in Tradition**
   From Haudenosaunee seed keepers to 5,000 years of organic farming in India, speakers emphasized that organic agriculture is not new—it's ancestral.
2. **Infrastructure is Key**
   Whether it's corn mills in Wisconsin or milk processing in Latvia, all speakers stressed the need for scaled-appropriate, regional infrastructure to support smallholders.
3. **Localized Solutions**
   Organic districts in Asia, tribal cooperatives in the U.S., and youth-led farms in Latvia point to the power of locally embedded, culturally relevant systems.
4. **Uneven Playing Field**
   From the €22B youth farmer finance gap in Europe to defunded tribal food programs in the U.S., systemic underinvestment persists across regions.
5. **Identity-Based Farming**
   Organic isn't just a label—it's a way of being. "We don't have a word for organic in our language," said Lea Zeise. "We don't need to make rules about something that's already who we are."

ACTION ITEMS FOR PANEL 2

- **Fund right-sized rural infrastructure**
  Support community-scale facilities to help smallholders and tribal growers thrive.
- **Restore key food sovereignty programs**
  Reinstate programs like LFPA that directly support Indigenous and rural food systems.
- **Create land and credit access pathways**
  Enable youth and Indigenous farmers to secure long-term access to land and capital.
- **Invest in cultural knowledge & exchanges**
  Support global Indigenous collaboration and embed cultural practices into organic policies.
- **Reframe organic as culture, not just compliance**
  Celebrate and uplift traditional and ancestral organic practices, whether certified or not.

Panel 2 – Discussion

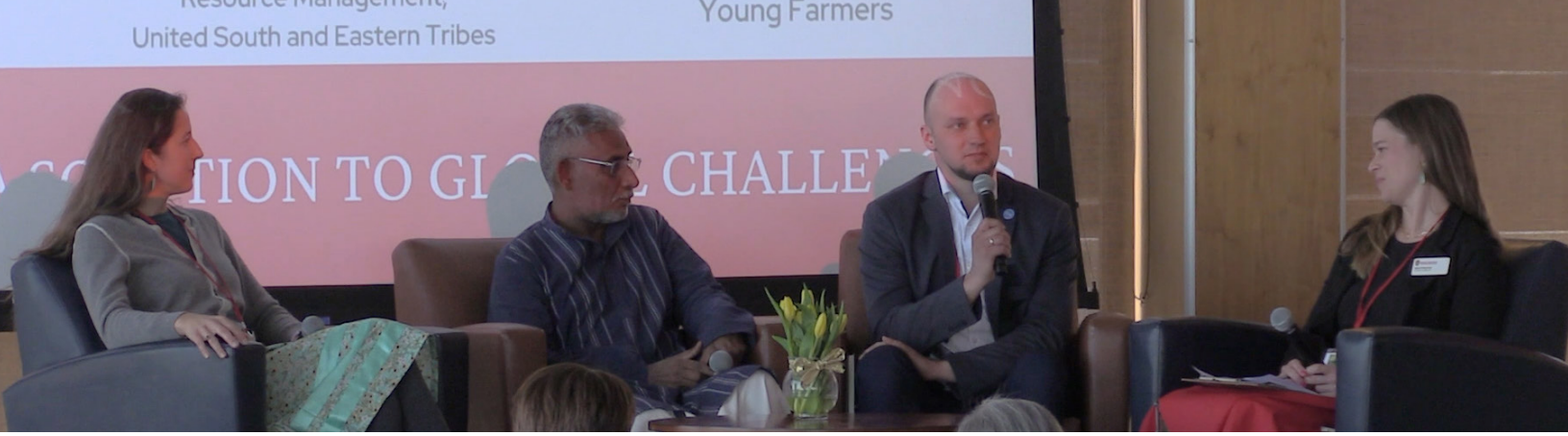
***Question 1:** For Matthew, tell us about your experience with Organic India? And have you heard of the University system in India that has programs for women growers?*

Mathew John – Mathew is familiar with both Organic India and the university system supporting women growers. Organic India is based in northern India and was started in the early 2000s. It was a pioneer in working with small farmers, particularly in cultivating Tulsi (holy basil) and other herbs, including wild collections. They've expanded their business to now include a wide range of herbal health products. Regarding the University system, he believes the question is referring to Amrita institutions, which support women growers. Mathew's organization has recently begun collaborating with them, particularly through their Alumni Association, which offers various products. While they seem to be doing good work, he's not fully aware of the scope of their activities.

***Question 2:** How are you planning to continue to collaborate, both within your own country or region and externally?*

Lea Zeise – The Ohe·láku is working with the Oneida Nation and is in the midst of building a corn processing facility to reduce labor and encourage more local corn growers, to ensure an abundance of corn for everyone. They are also working with the Great Lakes Intertribal Food Coalition (GLIFC), made up of all 11 federally recognized tribes in Wisconsin, to rebuild and revitalize their trade routes, aggregation sites, and distribution so they can move their food around and feed their people. They also have a strong partnership with UW Madison, which supports their research needs in a culturally respectful and responsive way. She says that they are always open to folks coming to visit them and learning alongside them, especially during October, to join them in harvesting their corn.

Mathew John – Collaboration efforts focus on supporting the younger generation, who are struggling with the transition from traditional rural economies to urban life. Many attempt to adapt to cities but often return to their communities feeling disconnected. However, those who choose to stay or return to their roots are finding strength and identity in the agricultural economy that they have been a part of for generations. They recognize the health and nutritional benefits of growing their own food and are moving away from reliance on the public distribution system. This shift represents a positive, though gradual, change for some, while others still face uncertainty and confusion.



Rudolfs Pulkstenis - Since COVID, farmers have increasingly relied on social media and had fewer in-person interactions. To address this, they organize 'fire evenings' with young people within different regions across the country where they gather to share food, drinks, and open discussions. These meetings help them reconnect, talk about their challenges, future plans, and farm equipment, reviving the valuable in-person connections we've missed over the past five years.

***Question 3:** Do you see any opportunities for external collaborations?*

Mathew John - There's a growing movement among indigenous communities, driven by a renewed sense of identity and supported by legislation like the Forest Rights Act. Although it took 15 years to overcome bureaucratic hurdles, the Act has enabled many communities to gain ownership of their lands, empowering them to farm, harvest, and assert their rights. This Act increased awareness and advocacy around the country, which is a huge movement forward.

Ruldofs Pulkstenis - From the Brussels perspective, farmers often tend to be introverted and mostly communicate among themselves. However, in recent years, there's been a positive change in engaging with external stakeholders and improving communication through shared meetings and collaborative efforts.

***Question 4** - What resources do you and the farmers in your communities need to succeed in the future?*

Mathew John - There's a critical need for greater customer awareness and appreciation of traditional knowledge and practices. The state often promotes a homogenized education system that ignores local culture and realities, leading to a disconnect, for example, teaching irrelevant content like 'A for apple' in regions without apples. Communities must recognize the value of their own language and traditions, and they need to be conserved, even within a challenging political context. At the same time, consumers need to shift their mindset to value wild-harvested and traditional foods, which are often undervalued or seen as free, despite their true worth. Making this mindset shift is a huge challenge, but they need to continue their efforts to educate young people and future generations.

Lea Zeise – States Oneida and other Tribal Nations have an abundance of knowledge and resources but lack capital and infrastructure to bring their ideas to fruition. The other thing that would really benefit from is the return of their seeds, which are held in many archives and institutions across the country. Around the Great Depression, many of their seeds were collected and put into storage, like the Missouri Botanical Garden. They have 1000 varieties of indigenous seeds. These need to be brought home and planted again, so they can be with their people and hear their songs and can take place in the cultural fabric of their people and be honored. In the age of rematriation, she encourages individuals that work with any institutions that have indigenous seeds to bring those seeds back to where they belong.

Rudolfs Pulkstenis – Funding is a major need—highlighted by a recent survey where a third of members emphasized 'money, money, money'—equally important is developing a common understanding of what their current state is with respect to age of farmers, number of organic farmers – so they can determine whether they can scale up or down, and whether they have generational renewal within the farming community. Also, they need to identify best practices within the different states and countries and use them to scale their efforts.

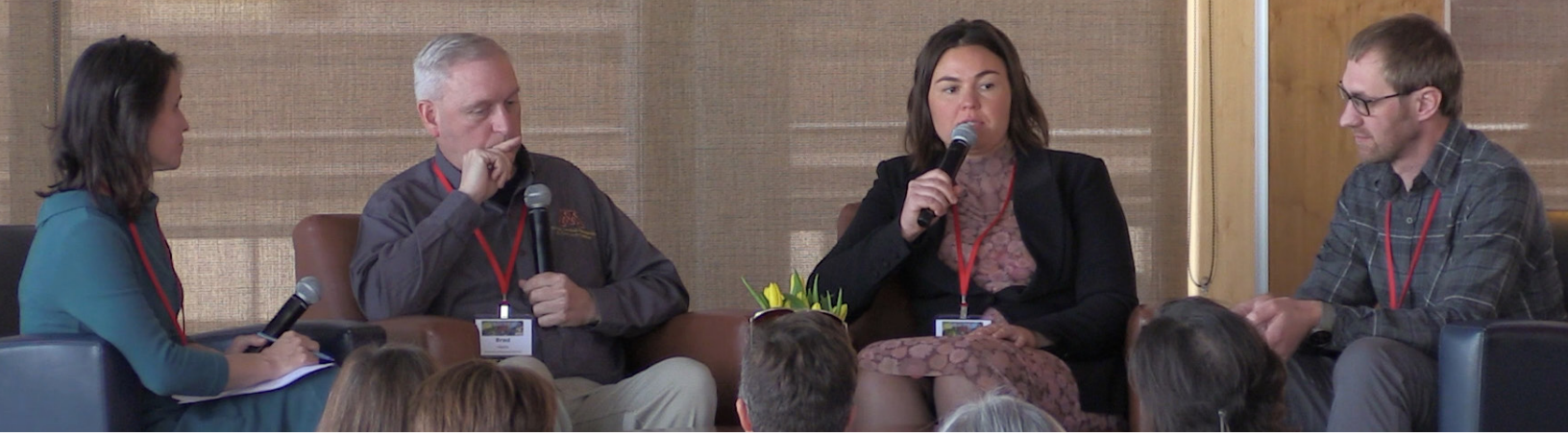
***Question 5** - Question for Lea Zeise - Do you see an opportunity to market your corn and other food beyond your traditional Tribal trade routes?*

Lea Zeise – The Ohe·láku is really committed to feeding their people traditional foods first, as there is so much meaning behind doing that. They are prioritizing their ability to scale up to the point where that can provide the Tribal Elder Food Box with multiple corn products and that the Oneida One Stops (grocery stores) always have corn on their shelves. They are not driven by making a profit and having their products in many markets. However, there are other indigenous farmers who are interested in outside markets, like the Food Lab in Minneapolis, Ramona Farms, and Bidii Baby Foods, are pursuing broader market opportunities. Ohe·láku is really focused on feeding their community and making sure their people have regular access to their traditional food.

***Question 6** – How do you manage the preservation of indigenous farming seeds when working with government research systems that aim to formalize and standardize them? How can we ensure they retain their uniqueness and aren't altered or lost through formalization?*

Lea Zeise – This is a huge issue, seed sovereignty - protecting Indigenous seeds from being exploited by external entities that extract valuable traits for commercial gain, such as creating GMO varieties. To protect their seeds, they have an MOU with the University of Wisconsin - Madison, where they retain all the data about their seeds and retain all their seeds to protect them from being exploited. There is a growing movement to protect Indigenous Intellectual Property of their seeds, and seeds have returned to their communities - for indigenous communities to decide how and when research is done with their seeds. This is actually now covered through the extension of Native American Graves Protection and Repatriation Act (NAGPRA) (originally for human remains) for indigenous seeds be returned to their communities and not studied without their consent.

Mathew John – Seeds are a huge issue in India, as they are run by commercial companies. However, there is a movement to save the indigenous seeds, they now have "Seed Fairs" taking place in local communities – where people come together to share seeds. They have lost many of the different varieties of seeds for rice and beans as well as other crops. This effort of creating live seed banks through community Seed Fairs and exchanges are keeping local seed varieties viable.



Panel 3. Organics as a Solution to Regenerative Livestock Production

Panel experts: ***Chris Wilson,*** *Farmer, Wilson Organic Farms,* ***Josefine Pettersson,*** *Operations Manager, Australian Organic Limited,* ***Brad Heins,*** *Professor, University of Minnesota.* ***Moderator:*** ***Erin Silva,*** *Professor, University of Wisconsin-Madison*

CHRIS WILSON, Wilson Organic Farms

Chris represents the eighth generation of Wilson Organic Farms, a family-run operation established in 1848 in southwest Wisconsin. The farm transitioned to certified organic in 1996 and began marketing its milk through Organic Valley by 2000. Today, they steward roughly 3,800 acres and maintain a 500-head Holstein dairy herd. Nearly all the livestock feed is produced on-farm, with only minerals brought in. They also grow food-grade grain for local millers. Looking ahead to 2025, the farm's vision includes diversifying with silvopasture systems and exploring new food and fiber crops, all grounded in a commitment to closed-loop, integrated crop-livestock systems that promote long-term self-reliance and ecological health.

Chris introduced the concept of "Net Solar Harvest," a guiding philosophy that calculates how much usable solar energy is converted into food and fiber per acre—after accounting for external inputs like fossil fuels and synthetic fertilizers. While not a strict scientific measure, it reflects a mindset: maximize photosynthetic potential and ecological services through continuous living cover, diverse rotations, and livestock integration. By keeping the land green and growing roughly 80% of the year—compared to about 40% in conventional systems—they capture nearly double the sunlight for productivity. Livestock play a key role, allowing the farm to utilize non-edible biomass and return nutrients through manure. The benefits are broad: healthier soils, improved water infiltration, increased biodiversity, and greater economic resilience. Visitors to the farm often remark, "Your farm feels alive," noting the presence of pollinators, birds, and flowering cover crops.

Despite their successes, Chris highlighted persistent challenges. These include scaling efficiencies, building specialized knowledge and skills, securing labor, and accessing appropriate infrastructure. Yet the future holds promise. Emerging markets, climate resilience, and regenerative models that include perennial crops like chestnuts, hazelnuts, and persimmons all offer new possibilities. For Chris, the goal is to shift away from linear, input-heavy production models toward regenerative, systems-based thinking that builds layered productivity and ecological integrity over time.

JOSEFINE PETTERSSON, Operations Manager, Australian Organic Limited

Josefine provided an insightful overview of the Australian livestock sector, which includes approximately 28 million beef cattle and 2 million dairy cows. Notably, around 40% of the cattle receive human growth hormone, and roughly 80% are finished in feedlots. Only about 20% of the beef cattle herd is grassfed, yet this smaller segment represents Australia's largest beef export. Australia's organic and livestock sectors operate across vast landscapes—nearly half of the 99 million hectares of certified organic land globally is found there, much of it in rangelands and grazing systems.

She highlighted Bonny Doon, a standout example of regenerative organic farming. Bonny Doon is a family-run, fully integrated beef operation that manages over 20,000 acres. The farm is USDA Organic Certified and practices daily to tri-daily rotational grazing, allowing for improved pasture health and soil regeneration. Bonny Doon became the first Australian farm to receive the largest carbon credit for regenerative livestock practices,

demonstrating that carbon-negative meat production is possible through well-managed organic systems. Josefine challenges the common perception that red meat consumption is inherently unsustainable, pointing to Bonny Doon as evidence that beef production can align with climate goals when it embraces regenerative practices.

Bonny Doon incorporates leguminous fodder crops like leucaena and desmanthus, which are well-suited to Australia's climate fluctuations and contribute to both soil fertility and carbon sequestration. These forage crops increase both the nutritional quality and carrying capacity of pastures, enhancing the sustainability of grassfed beef systems. Bonny Doon began earning carbon credits at AUD $29 per ton, which rose to AUD $45 over five years. With carbon measurements taken every five years, Josephine is eager to see how the next round reflects the ongoing soil-building efforts. While some Australian scientists question the role of soil carbon sequestration in reducing emissions, Josephine argues that the organic community—where soil health is central—should have a stronger voice in shaping this dialogue.

Despite growth in Australia's organic sector, the country lacks government support for farmers transitioning to organic, and regulatory fragmentation remains a challenge. Josefine emphasized that one of the biggest barriers to growing the organic market is a widespread consumer disconnect from how food is produced. In her words, "Before you can teach people why to choose organic, you have to teach them how food is grown." Australia's advantage in organic exports lies in its land base—large, certified farms averaging 230,000 hectares (comparable to the size of Massachusetts or Luxembourg) allow for economies of scale that are critical to competing in global markets.

Australia's meat and livestock sector has committed to a carbon-neutral target and is pursuing multiple strategies to meet it. These include incorporating methane-reducing feed additives like Bovaer®, along with better herd management practices such as pregnancy testing and integrating drought-resistant, carbon-sequestering plants like leucaena. However, she raised concerns about the compatibility of chemical additives with organic principles, highlighting tensions between technological efficiency and organic standards. Additionally, Australia is moving toward mandated animal welfare benchmarks, such as achieving 100% pain relief for all procedures by 2030.

Josefine concluded by mentioning Hewitt Food Group, the world's largest fully integrated organic meat producer, managing over 2.7 million hectares. Hewitt is both GAP and organic certified and exports to the U.S., supplying retailers like Whole Foods. Their commitment to carbon-neutral production aligns with Australia's national emissions reduction goals under the Paris Agreement. To Josefine, the direction is clear: "The future of livestock production is organic, is regenerative. They're synonymous. You can't have one without the other."

BRAD HEINS, University of Minnesota

Brad introduced his research on methane gas reduction in dairy cattle through the use of SeaGraze, a red seaweed product developed by a Hawaiian clean-tech startup, Symbrosia. They used their dairy cows from their Research Center at University of Minnesota and a $150,000 piece of equipment that measures greenhouse gases, namely methane, in the pasture. Red seaweed from the Pacific ocean is one of the biggest methane inhibitors, better than the green or brown seaweed from the North Atlantic. This study took place over six months. What the results showed was that in the first couple months, there was not much reduction in methane. However, in three to four months they saw about a 40% reduction in methane emissions, and it stayed with the cows. However, after 6 months the cows became resilient to the SeaGraze additive and saw less methane gas reduction, likely due to microbial adaptation in the cow's rumen. Not only did SeaGraze become less effective in reducing methane after 6 months the researchers found that these cows produced above average amount of CO2 per day and increased hydrogen gas to the point of potential cows igniting. Fixing one thing causes chain reactions in the other things. So they might have fixed the methane problem but now they have created carbon dioxide and hydrogen problem.

The SeaGraze research results for animal performance show that milk production remained stable, and feed efficiency improved slightly. The milk quality with

respect to fatty acids stayed consistent, but with a slight increase in bromide (from bromoform, the methane reducing agent) were detected in both milk and urine. When they performed a consumer safety and taste test, they found no significant health concerns (unless you drink more than 2-3 gallons/day) for adults but bromide can have adverse effects in children. From a consumer taste preference, consumers preferred milk from seaweed fed cows vs regular organic milk.

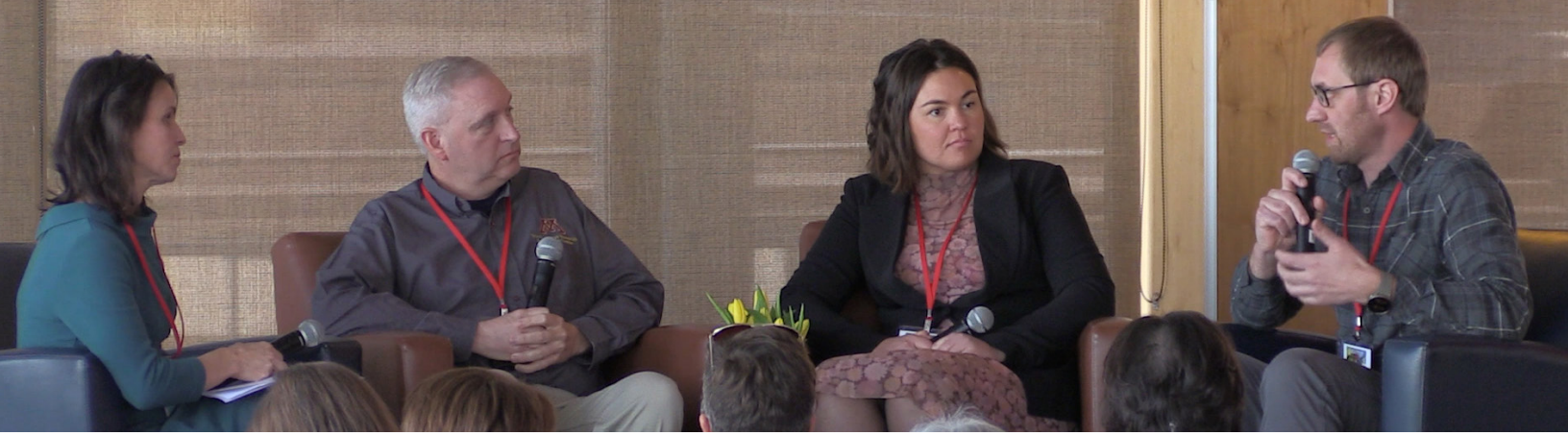
For organic dairy to stay viable in the future, he foresees a combination of precision agriculture, soil health, and more feed innovations.

COMMON THEMES FOR PANEL 3

1. **Integrated Regenerative Systems**
   All three speakers emphasized whole-farm, ecological integration of livestock to enhance soil health, biodiversity, and productivity.
2. **Climate & Emissions Accountability**
   From carbon credits to methane inhibition, the role of livestock in climate solutions is front and center.
3. **Organic Principles vs. Technological Innovation**
   Tensions arise between staying true to organic standards and adopting new tools.
4. **Consumer Education & Market Connection**
   Building a deeper public understanding of how food is grown is critical.
5. **Infrastructure & Policy Gaps**
   Scaling regenerative systems requires systemic support.

ACTION ITEMS FOR PANEL 3

- **Promote integrated crop-livestock systems that improve ecological function**
- **Support research into climate-friendly practices that meet organic standards**
- **Create clear guidelines for new inputs (e.g., feed additives) in organic systems**
- **Develop targeted consumer education campaigns on sustainable livestock**
- **Advocate for public policy that supports transitions, infrastructure, and fair markets**



Panel 3 – Discussion

***Question 1:** What data or tools do you need as a farmer, a researcher, or organic farming advocate?*

Chris Wilson - We have plenty of data, what is lacking is data management and how to make useful conclusions.

***Question 2:** How do we better document the benefits of organic livestock production? How do we improve our data collection and models?*

Chris Wilson - Soil health data is lacking, especially with respects to how does the living root in the soil impact the biome there. And how do different food production systems (food and forage to livestock) impact methane, carbon, etc… through a holistic system?

Josefine Pettersson - Currently, we are rewarding mismanagement and incentivizing farmers/ranchers who improve rather than rewarding the farmers/ranchers who are already doing the right thing. Also, in Australia they want to reward organic farmers/ranchers through both consumer premiums and additional income streams. They advocate for leveraging satellite technology—such as tools developed by Downforce Technology —to monitor and communicate biodiversity, carbon, and natural capital outcomes. The goal is to make it easier and more affordable for producers to demonstrate their environmental benefits to consumers and markets, ensuring their story is told effectively.

Brad Heins - Need to collect data from the soil perspective but also the cow perspective – how changes in management affect both.

***Question 3:** How do organic producers manage size of herd, style of management that better positions organic farmers to be more resilient to disease outbreaks?*

Josefine Pettersson - All livestock systems need to have breeding for resilience incorporated into their management.

Brad Heins - Having animals outside, grazing is the preferred method for animal health and well-being.

Chris Wilson - More organic farms are managing for resilience through diversified crops and selecting, breeding, and raising animals for resilience.

***Question 4:** What are some specific practices organic farmers are using to improve herd health and reduce the need for medical interventions, and what further research or data is needed to strengthen the case for organics in mitigating antibiotic resistance?*

Chris Wilson - We have a well mineralized forage, healthy soils, ultimately those diets make the cows healthier and more resilient. A question is how does a conventional herd that has been given antibiotics change their milk and meat – how does that biome change overtime compared to organic, non-antibiotic livestock?

Josefine Pettersson - In Australia, organic production prohibits antibiotic use, but a major challenge lies in the high cost and regulatory barriers to registering alternative treatments—like probiotics—which require around

a million Australian dollars get product registered. This restricts open communication on effective alternatives, limiting discussion to individual case studies and making it difficult to promote these solutions to the broader, non-organic sector.

Brad Heins - There is actually a lot of tools in the organic toolbox that we can use, for instance in Europe they can use some antibiotics, but they have to double the withdrawal period. In U.S. we can not use antibiotics, so we are looking at vaccines to help improve animal welfare. Also, we need to think about from a management perspective, higher forage diets probably promote less health issues in cows.

***Question 5:** How do you mitigate risk on your farms with changing climate?*

Chris Wilson - With the weather changes – diversity in cropping creates resilience.

Josefine Pettersson - Australian producers know that they are going to have a few good years and they need to have enough in the bank for the bad years. With respect to livestock when we have flooding the size of Texas, it's hard to manage that, so many producers have multiple farms so they can move their livestock in extreme weather. Plus, they have diversified crops to help them survive during the bad years.

Brad Heins - Having enough land access or access to land to be organic and minimize risk. Having diversified crops both during the growing season and cover crops and double cropping helps manage the land better than just one crop per year.

***Question 6:** Can you discuss the role of organic in relation to the growing use of "grass-fed" claims in conventional systems, and how we can better differentiate organic in the marketplace, especially in terms of consumer perception?*

Josefine Pettersson - Australian perspective, the grass-fed claim is not substantiated by an audit. An animal can be on grass for one day of its life, and be called grass-fed. So they are trying to show the importance of third-party certification for organic, to be able to show the consumer what they are getting when they buy organic and that it is in-line with their expectations.

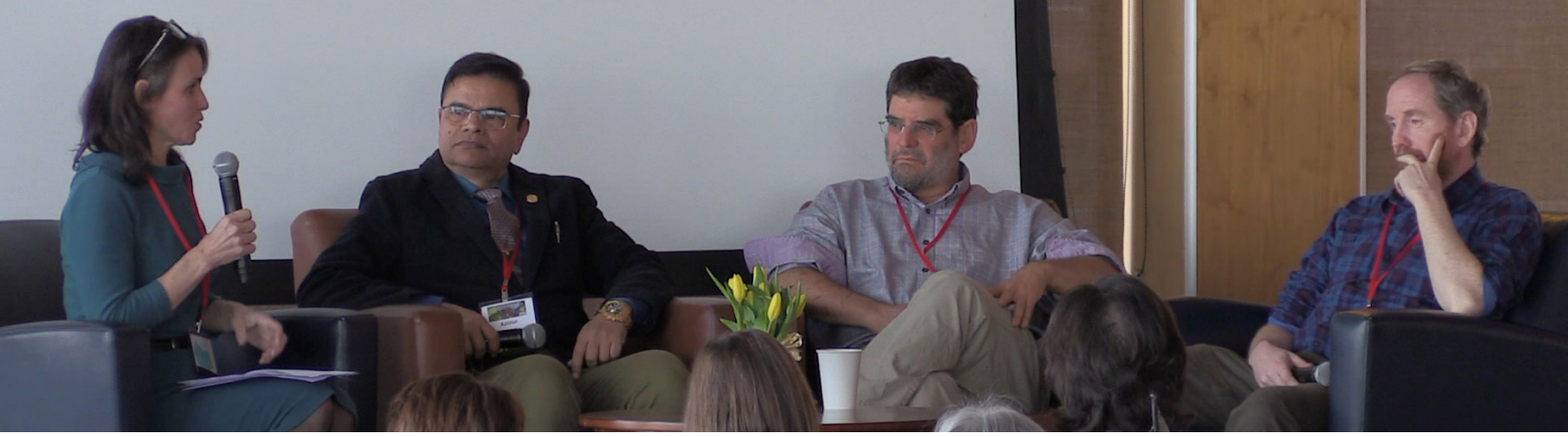
Brad Heins - There needs to be some standards when it comes to grass-fed. We can't have cows on grass for one day and be labeled as grass-fed. It really needs to be looked at from the health perspective of the consumer.

Chris Wilson - From both the consumer and producer perspective we are unified that we need a better standard and better transparency, but it doesn't exist like the organic label.

***Question 7:** Are organic herds closed?*

Chris Wilson - Many organic herds are closed.

Brad Heins - Our herd has been closed for 25 years.



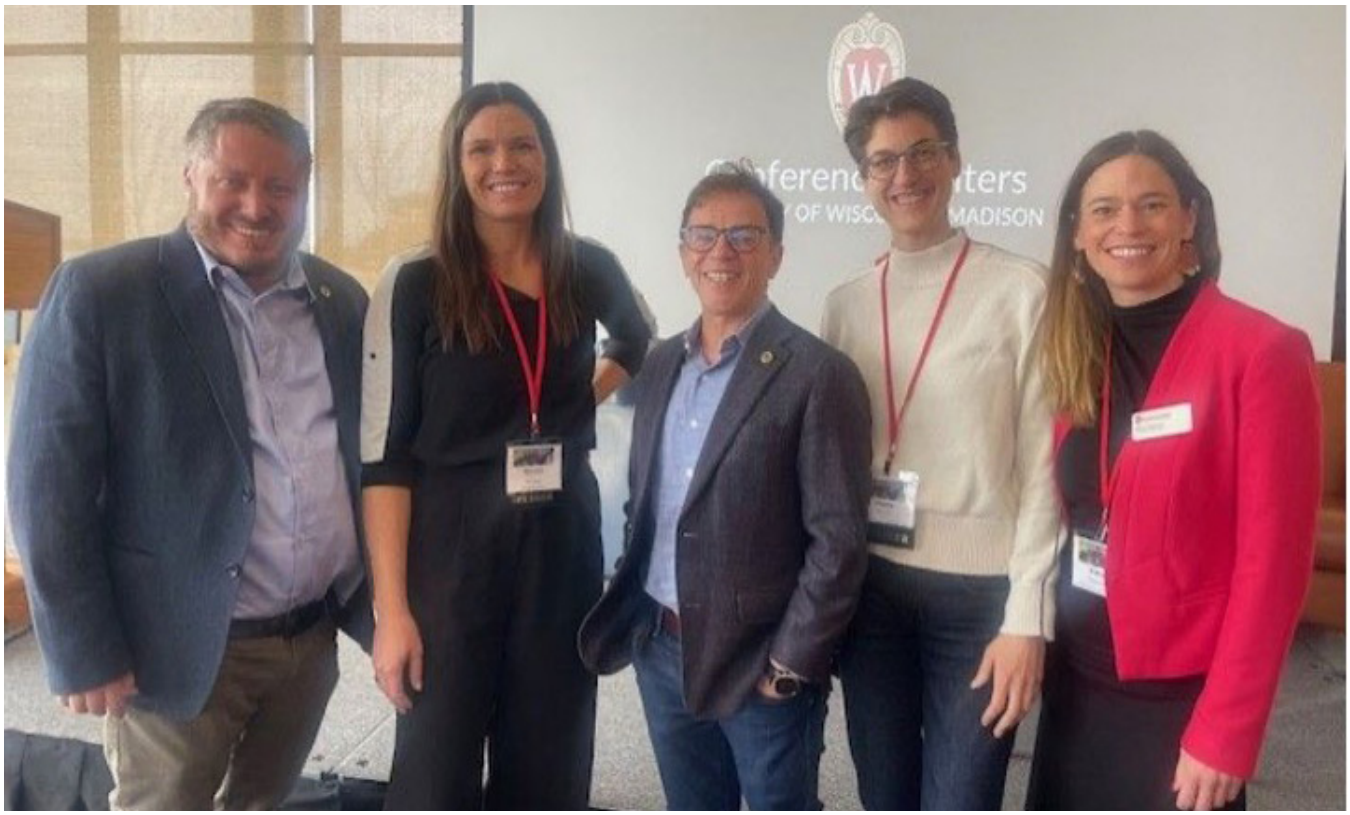
Panel 4: Organics as a Solution to Health and Nutritional Security

Panel Experts: ***Azizur Rahman,*** *Research Head & President, CEO for Centre for Climate Change Research, and Professor at University of Toronto;* ***Asa Bradman,*** *Professor at University of California Merced;* ***Kevin Murphy,*** *Professor at Washington State University.*
Moderator: ***Erin Silva,*** *Professor at University of Wisconsin Madison*

AZIZUR RAHMAN, Centre for Climate Change Research, and University of Toronto

Health and Nutrition Benefits: Currently researching Aqua-Now, a liquid organic fertilizer with beneficial microbes with 25X immune boosting beta carotene. Beta carotene is converted to Vitamin A in the body which is a key nutrient for neural development, vision, memory retention and immune function. Plus, the brain boosting minerals of zinc and magnesium, essential for neurotransmitter function, focus, and mental clarity are naturally enriched in organic agriculture. Their formula also is free from neurotoxic pesticides and additives, supporting health with powerful antioxidants that combat oxidative stress and slow cellular aging.

Organic Farming: Aqua-Now can be used in both open field and greenhouse applications. Their research shows that Aqua-Now doubles yield in a variety of vegetable crops (e.g., celery, basil, Swiss chard, etc.).



From left to right, Tom Chapman, Nicole Atchison, Matthew Dillon, Maike Krauss, and Katie Peterman.

Challenges in Organic Agriculture: Biggest challenges are high cost to produce organic food, low consumer awareness of the costs, lengthy organic certification (3-years), and technology limitations.

Technology & Innovation: As the consumer demand for organic food is increasing (a $207 billion global industry in 2024) it will be difficult to meet these demands without the use of indoor agriculture. An indoor vertical greenhouse that utilizes AI automation and ultra-precision robotic sensors to produce nutritious, pesticide-free leafy greens and fish species (or without fish) year-round. With the use vertical farming and increased production with Aqua-Now he feels this is the next step in overcoming the climate challenges and demand for organic food and eventually achieve zero unemployment, zero hunger, zero emissions, and zero waste.

He concluded his presentation with a call to expand awareness, research, and policy support for organic agriculture as a holistic solution to food, health, and environmental challenges.

ASA BRADMAN, University of California Merced

Presented on his Center for the Health Assessment of Mothers and Children of Salinas (CHAMOCOS) project in Salina Valley, California that started in 1998, 26 years of research. Study researched the health impacts of pesticide exposure, namely organophosphate pesticides (OP), on farm workers and their children. They collected 22 years of data on the children, approximately 350 children. They collected blood, saliva, and urine samples from mothers, fathers, and children, as well as breast milk samples from the mothers. Plus, environmental samples in the home, e.g. dust. They compared these data with the pesticide use data in California, where agricultural pesticide use is reported to a scale of one mile squared. They measured the metabolite for organophosphate pesticides and found that mothers in CHAMOCOS study area had 40% higher diphosphate metabolites than the general U.S. population. About 97% of the breast milk sampled had some currently used pesticides. These newer OP's have a shorter half-life than the old organochlorine pesticides (e.g., DDT), yet the OPs were found in every home in dust samples, indicating widespread environmental exposure.

They did a few studies on diets where children ate organic food for a week and found a significant drop in OP metabolites in their urine in just one week. These results are like other studies, which indicate that diet is a significant source of pesticide exposure. Other health impacts include women who had higher levels of OP metabolites in their urine during pregnancy and shorter pregnancies, newborns had abnormal reflexes. These children had Lower IQ (~ 7 point IQ drop at age 7 from high to low exposure), poor verbal and social skills, attention problems, autism-like traits, and executive function deficits, and poor working memory.

Some modifiers of risk with exposure included genetics of the mother. Children of mothers with low levels of the enzyme paraoxonase (which detoxifies organophosphates) had a greater IQ decline. And social stress also plays an important role. High family adversity (e.g. parental separation) amplified the negative cognitive effects of pesticide exposure.

Study results contributed to key policy changes including the ban of chlorpyrifos, pesticide buffer zones near schools and childcare, and California's pesticide notification system.

This study underscores the long-term harm of pesticide exposure during development and the need for stronger environmental protection, community-based research, and organic or less-toxic agricultural practices.

KEVIN MURPHY, Professor and Plant Breeder at Washington State University (WSU) and WSU Bread Lab

Kevin presented on his Soil to Society Project, which connects plant breeding with human health by developing nutritious and affordable grain and legume varieties. He has been working on breeding nutritional value into wheat for 22 years. Recently, he teamed up with the WSU College of Medicine, as well as Johns Hopkins and Colorado State University and together they work on creating more nutritious and affordable varieties of grains and legumes (e.g., peas, lentils, barley, quinoa, and buckwheat, etc.). This project first starts with soil health as through soil health crop rotations and sequences can promote more nutritious grains and legumes. For more specifics see Soil to Society website (https://www.soiltosociety.org/).

Some of the new varieties that they have developed are:

1. **Meg Song (Naked Barley)** – which is bred for human consumption, unlike most other commercial barleys (typically feed or failed malt barley). Meg Song contains higher beta glucan (8% compared to 3-4% for other commercial barleys), a heart healthy dietary fiber, and selected for flavor and functionality in bread, soups, and salads. Its naked as it is hull-less (naked) which retains more nutrients and allows it to qualify as a whole grain. Plus, it is high yielding, as much as the malting varieties.

2. **Elwha River Spelt (Naked Spelt)** – is the first known naked spelt variety, developed for organic dry land farming, especially for the Pacific Northwest. This breeding program was funded by Organic Farming Research Foundation. And the seed was released via Open Source in 2014. It was not easy to develop the supply chain for this spelt, until the Culinary Breeding Network (https://www.culinarybreedingnetwork.com/) was got involved, this organization pairs plant breeders with chefs and bakers. Because of this relationship in developing a non-commodity supply this spelt got the attention of different millers and bakers and now is included in Dave's Killer Bread, a nation-wide brand.

3. **Tinker (Buckwheat)** – was bred in Kevin Murphy's backyard as he was not able to secure funding for buckwheat breeding. After 6-7 years of backyard breeding, he tested the variety on different farms in Western Washington. These farms selected the best variety based on early maturity and high yielding. They promoted this variety via Culinary Breeding Network and Buckwheat Festivals at the Bread Lab and used in innovative school nutrition programs.

Rebuilding the regional food system requires cooperation with breeders, local farmers, millers, bakers, chefs and schools. He found that a good way for communities and markets to learn about the new seed varieties is through storytelling like "Who gets Kissed?" and "Why get Naked?" He concluded by emphasizing that plant breeders today are also food system builders, health advocates, and educators working across disciplines and communities to bring healthier, more flavorful, and regionally adapted foods to people.

COMMON THEMES FOR PANEL 4

1. Organic Food as Preventative Health
    - Organic diets significantly reduce pesticide exposure (CHAMACOS study)
    - Beta carotene, magnesium, and zinc in organic crops support neural and immune health
    - Organic food production avoids neurotoxic residues, supporting maternal and child development

2. Environmental & Social Justice Benefits
    - Organic farming eliminates harmful organophosphates, protecting farmworker families
    - CHAMACOS data linked OP exposure to long-term developmental harm and lower IQ
    - Social stress and genetic vulnerability amplify health risks—calling for holistic interventions

3. Innovation in Organic Systems
    - Aqua-Now boosts yield and nutrition with microbial-based liquid fertilizer
    - Indoor vertical farming with AI & robotics proposed to meet global organic demand
    - Soil-to-Society plant breeding connects soil health to public nutrition outcomes

4. Rebuilding Regional & Equitable Food Systems
    - Elwha Spelt and Tinker Buckwheat showcase success through open-source seeds and local partnerships
    - Culinary Breeding Network bridges breeders and markets through storytelling and events
    - Collaboration across farmers, millers, bakers, and schools vital for scaling new food pathways

ACTION ITEMS FOR PANEL 4

- Expand investment in research linking organic food to health outcomes
- Support organic solutions to reduce pesticide exposure, especially for children and pregnant women
- Fund innovative indoor and soil-based systems that increase organic food access
- Strengthen regional value chains and storytelling to connect communities to healthier, local food
- Enact stronger policies to protect vulnerable populations from environmental toxins
- Integrate breeders, health professionals, educators, and food workers in co-creating solutions

Panel 4 – Discussion

Question 1: ***Can you talk about how connections were made between your agricultural research programs and the medical community, particularly the medical school, and what barriers you encountered and how you overcame them?***

Asa Bradman - We have plenty of data, what is lacking is data management and how to make useful conclusions.

Question 2: ***How do we better document the benefits of organic livestock production? How do we improve our data collection and models?***

Asa Bradman - The project originated with the School of Public Health at University of California Berkeley, along with the joint medical program with University of California San Francisco and relationships with clinical providers in Salinas Valley. So, he already had a long history of public health work and outreach with community groups, as well as their Center for Occupational Environmental Health. All these prior strong relationships including Grower Shipper Association, the Farm Bureau, the Agriculture Commissioner, Health Officers and elected officials provided the bases for a cross section of the community to work together on this project.

Kevin Murphy - His collaboration with the College of Medicine occurred after WSU Office of Research redirected 2.5% of everyone's funding and put that money into a central funding source called Grand Challenges, which encouraged transdisciplinary research. They teamed up with the College of Medicine and received $2.5 million which enabled them to hire new faculty, start pilot studies, and obtain preliminary data needed to write grant proposals.

Azizur Rahman – They have already established partnerships with the pharmaceutical industry and clinics, as well as their own medical department, focusing on the concept of Food as Medicine. Their goal is to apply food-based technologies in ways that reduce the need for conventional pharmaceuticals. He also noted when positioning work under the "food as medicine" framework compared to traditional organic agriculture. Recently expanded R&D facilities are supporting this growing focus on medical applications.

Question 2: ***Building off the Make America Healthy Again (MAHA), the Tribal Elder Food Box program and the food prescription or "Food as Medicine" programs in the state of Michigan (are initiatives that connect healthcare providers with food systems to address food insecurity and promote better health outcomes). Have any of you worked directly with hospitals or healthcare providers to advise or implement food-as-medicine programs, particularly those that support local or organic producers?***

Azizur Rahman – Hospitals are very interested in working with them, but they do not have the quantity of product to supply the hospitals. When their supply is at the capacity to supply hospitals they plan on getting their products into the hospitals.

Asa Bradman - They have worked with the Berkeley Food Institute including with Kaiser Foundation, big local HMO in California. A physician leader with Kaiser helped launch initiatives to improve hospital food, by setting up farmers' markets at the medical office buildings, which provided markets for smaller suppliers.

Kevin Murphy - Five years ago they had the opportunity to work with hospitals or schools, as they did not have the capacity to do both. They choose schools so they can focus on the next generation and find it to be both challenging and very rewarding. Their future plans are to work with hospitals and a twin registry component.

Asa Bradman – He pointed out how their research contributed to MAHA movement, through their study on how synthetic food dyes affect children's attention and behavior. Their results have been widely cited and influenced state-level policy changes, including bans on artificial food dyes in California, West Virginia, and soon Utah, and with 34 other states considering similar actions. He emphasized food additives in processed foods, many that are not permitted in

organic products, which is another connection between organic food and public health advocacy. Understanding the risks associated with pesticides, food coloring, and food additives and health could be the common goal among organic and the "MAHA" communities.

Question 3: ***In our country (Tanzania), we're currently working to phase out highly hazardous pesticides, but we've mostly approached it from the agricultural side, focusing on farmers. After a recent symposium with our health department, it became clear that the health impacts—particularly on women and children exposed during weeding and harvesting—could be a more compelling entry point for change. Given the disconnect between agriculture and health regulatory bodies, and the influence of multinational corporations over some of the health institutions, how can we strategically use public health research—especially around children's health and generational harm—to shift the narrative, gain political momentum, and unify these fragmented systems in pushing for pesticide reform?***

Asa Bradman – He reflected on the long-term funding involved in the CHAMACOS project which amounted to $50-60 million and acknowledged that it would be unlikely that such funding would be available today. Early on the project, his team spent time building relationships with key agricultural stakeholders like the Grower-Shipper Association, Farm Bureau, and Ag Commissioner – their relationships were not always smooth, but he kept at it. Asa emphasized the importance of engaging community, government, and industry together, which helped reduce opposition to policy changes, especially around pesticide regulation. Despite some conflicts these relationships enabled progress, illustrating the value of maintaining open, if sometimes tense, communication across sectors. The collaboration contributed to public health gains, including reduced use of organophosphate pesticides.

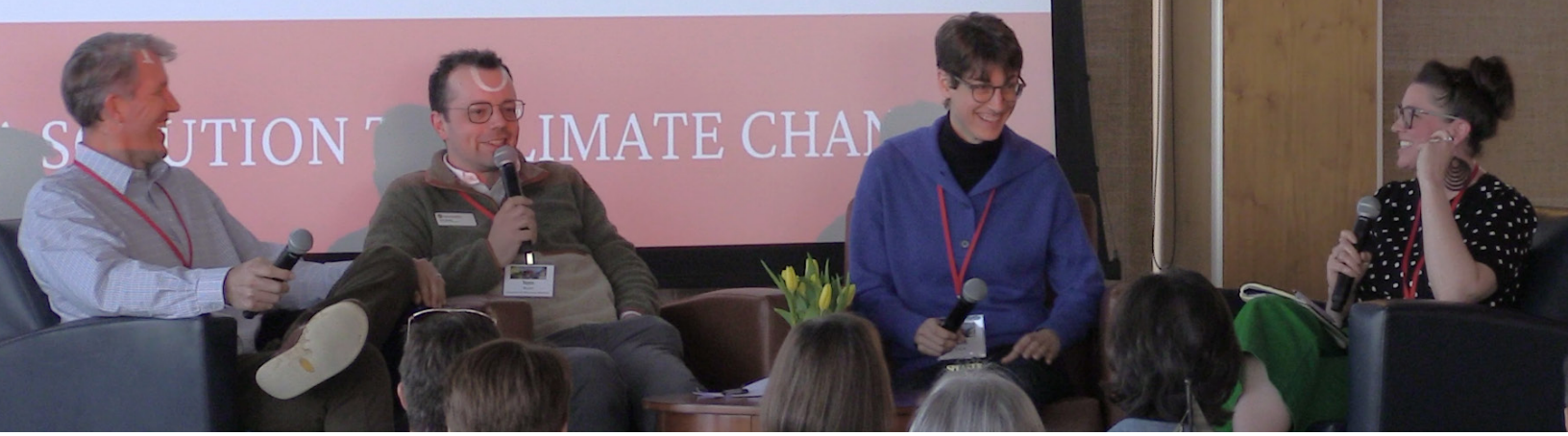
Question 4: ***In a world where consumers are overwhelmed by conflicting information, how can we ensure that they receive accurate, science-based messages—particularly about organic agriculture, and how can researchers and institutions better communicate the value of their findings to the public?***

Azizur Rahman - In Canada, people are not aware about organic food and how it relates to lessening the impacts of climate change. Traditional agriculture industries view organic as the enemy, because we are introducing organic food. These Traditional Agricultural Industries do not want competition as they are making a lot of money and killing a lot of people with the pesticide use. Policymakers often do not understand the difference between organic and non-organic food or its implications for health and the environment, and academia is underrepresented in decision-making.

Azizur urged institutions, especially well-regarded ones, to engage policymakers more directly, highlight the climate crisis, and hold larger, more inclusive conferences that bring together farmers, communities, and experts. These efforts could raise public awareness and educate consumers on the health and environmental benefits of organic food, especially as the organic market is rapidly expanding. He concluded that the organic community has a responsibility to lead this shift in consumer understanding and policy engagement.

Kat Becker – Organic Farmer from the audience: She highlighted the value of simple, accessible tools—like the Environmental Working Group's Dirty Dozen/Clean 15 lists and their toxicity rating app—in helping consumers make informed choices about organic food and personal care products. These tools are especially useful for guiding decisions when consumers can only afford to buy some organic items. While toxicity information is more straightforward, nutritional data on organic food is inconsistent and varies based on growing conditions. The speaker emphasized the need for clear, practical tools that simplify choices without overwhelming people with political or technical details.

Asa Bradman - EWG does a great job. Also on the pesticide side, it underscores the importance of the USDA's pesticide residue monitoring program and other residue monitoring programs.



Panel 5: Organics as a Solution to Climate Change

Panel Experts: ***Amber Sciligo,*** *Director of Science Programs, The Organic Center,* ***Maike Krauss,*** *Deputy Head of the Department of Soil Sciences, FiBL,* ***Andrew Smith,*** *Chief Science Officer, Rodale Institute.* ***Moderator:*** ***Tom Bryan,*** *Teaching Faculty, Organic Agriculture and Agroecology, UW-Madison*

AMBER SCILIGO, The Organic Center

The Organic Center's mission is to help conduct and convene credible evidence-based science behind organic and food and farming and to communicate these scientific results to consumers. The goal being to empower consumers with credible information so they can make informed decisions in their daily lives. They do this through four distinct activities.

1. **Filling Knowledge Gaps** – Identify research needs, build partnerships largely with universities, secure funding, and help communicate findings to broader audiences usually through extension services.
1. **Supporting Industry Advancement** – Collaborate with the Organic Trade Association to create communication tools that fuel advocacy and promote the organic sector.
1. **Building Communities** – Build coalitions with other nonprofits and convene organic supply chain stakeholder meetings to collaboratively solve organic challenges.
1. **Communicating Organic Benefits to Consumers** – Create science-based toolkits and resource guides showcasing sustainability claims (good for planet, good for people and animals, good for businesses) supported by data.

She then shifted to talk about to the effects of climate change, reframed as "weather" to resonate more broadly. Citing NOAA data, Amber highlights a dramatic rise in extreme weather events (those events that result in greater than $1 billion in damage) in the U.S. – from 14 in 2018 with $90 billion in damages to 27 in 2023 with $182 billion in damages. These events are not only increasing but they have unpredictable geographic variability – across the U.S. from hurricanes, wildfires, tornadoes, and severe storms leading to massive floods.

These variable weather patterns significantly impact agriculture increasing disease and pest pressure, disrupting pollinator populations, shifting crop suitability zones, and stressing plants. However, organic practices do protect natural resources and offer resiliency through:

- Greater biodiversity supports functional redundancy (e.g., bumblebees pollinate when honeybees cannot).
- Healthy soils in organic systems retain water better, prevent erosion, and support beneficial microbes.
- Organic farms emit fewer greenhouse gases and enhance soil organic matter.

Though organic may yield less in the short term, particularly during the three years transitioning to organic, long-term resilience often results in comparable or superior yields under extreme or variable weather conditions—enhancing food security in a changing climate.

MAIKE KRAUSS, Deputy Head of the Department of Soil Sciences, FiBL (Research Institutes of Organic Agriculture)

Maike began her presentation explaining more about FiBL Switzerland, which is part of the FiBL group, a network of independent organic research institutions in Europe. It was founded in 1973 and now has 320 employees covering all the agricultural sciences (animal breeding, crops, livestock, soils, etc.). They conduct research from basic to applied and work closely with farmers. One-third of its ~$50 million budget comes from national public funding.

She then shifted her presentation to focus on her decade-long climate change research, namely greenhouse gas emissions. The key points include:

- **Carbon sequestration** is possible but limited by soil saturation; biodynamic systems with composted manure were most effective in increasing soil carbon in FiBL's long-term DOK (dynamic, organic, conventional) trial.
- **Nitrous oxide (N_2O)** is the most critical greenhouse gas in this context due to its high global warming potential (273 times more potent than CO_2). Losses are inevitable when using reactive nitrogen, making nitrogen management a major challenge. Organic farming has a lower nitrogen input and turnover and thus emits overall less N_2O per hectare. Yet, N efficiency also needs to be improved in organic to contribute to N_2O mitigation.
- **Tillage** stimulates soil organic matter turnover and impacts background N_2O emissions. In low input systems, tillage is a larger driver of N_2O emissions than fertilization.
- **Methane reduction** strategies in livestock include increasing lactation lengths, reducing animal density, and using dual-purpose breeds (milk and meat).

Overall, organic farming offers real potential for climate mitigation, with lower nitrogen inputs, improved soil health, and lower emissions per area. A recent Danish life cycle assessment confirms that organic farms have lower climate impacts per acre/hectare and comparable impacts per product. However, there is still need for further research on improving nitrogen loss management and closing the yield gaps.

ANDREW SMITH, Chief Science Officer, Rodale Institute

Andrew provided the historical context of the Rodale Institute, founded in 1947 and started with organic garden magazines which were quite popular and profitable. When Bob Rodale lobbied Washington about legislation to support the organic movement, he was told he needed to demonstrate organic farming on scale and have research results to back up the claims. From there sparked the movement. The Institute operates a 386-acre farm in Pennsylvania, where it hosts the Farming Systems Trial (FST), the longest-running side-by-side comparison of organic and conventional farming systems in North America, initiated in 1981.

The FST compares three systems:

- **Organic Manure-Based:** Simulates livestock-based systems with composted manure inputs.
- **Organic Legume-Based:** Relies on biological nitrogen fixation from leguminous crops.
- **Conventional Synthetic:** Follows Penn State-recommended inputs and practices, including synthetic fertilizers.

Since 2008, the trial has included cover crop–based organic no-till and continuous no-till conventional systems.

Summary of Major Results from FST Research:

- **Yields:** Organic manure systems achieve comparable or higher yields (particularly in corn and wheat) during drought years. Legume systems show lower yields but have promise with innovation.

- **Soil Carbon:** Both organic systems significantly increased soil organic carbon, even at depths of 20 cm and 1 meter, while the conventional system showed no significant change.
- **Nitrogen Retention:** Organic systems stored more nitrogen in the soil over time, especially in the manure system. In contrast, conventional systems showed nitrogen losses, likely as nitrate leaching into groundwater or nitrous oxide emissions.
- **Soil Structure & Health:** Despite higher tillage in organic systems, aggregate stability and water infiltration rates were higher in organic plots. Organic systems held more than twice the rainfall before runoff compared to conventional fields.
- **Climate Resilience:** Greater carbon content and soil structure in organic systems, especially the manure system led to higher drought resilience, helping maintain yields under climate stress in corn and wheat fields compared to conventional. Organic is still struggling with organic soybeans vs. conventional with yield differences due to GMO crops and three chemical sprays resulting in no weed competition in the conventional soybeans.
- **Greenhouse Gas Emissions:** Preliminary modeling and in-field gas monitoring suggest lower GHG emissions per hectare and per kilogram of corn from organic systems, despite modeling limitations in accounting for compost nutrient dynamics vs ammonium nitrate applications.

Rodale is now investing in in-field gas measurement tools to close data gaps on organic greenhouse gas emissions. They are also exploring innovative low emission (or negative emission) fertility sources, such as biodigested food waste and biomass (such as clover), to boost yields in the legume-based system without increasing emissions. Overall, Adam thinks the reduction or elimination of chemicals in the environment and for human health is the greatest value that we have for the organic industry.

COMMON THEMES FOR PANEL 5

1. Organic as a Climate Resilience Strategy
    - Organic farms build healthier soils that store more carbon, retain water, and improve drought resistance (Rodale FST, FiBL DOK).
    - Organic systems support biodiversity, helping buffer against pest and pollinator disruptions during extreme weather (The Organic Center).
    - GHG emissions per hectare are lower in organic systems due to composting, cover cropping, and careful nitrogen use (FiBL, Rodale).

2. Soil Health & Water Infiltration
    - Long-term trials show that organic soils hold more water and resist erosion better—even in tillage-based systems (Rodale).
    - Organic systems have improved aggregate stability and deeper soil carbon sequestration than conventional (Rodale, FiBL).

3. Nitrogen & Emissions Challenges
    - Nitrogen loss and nitrous oxide emissions remain challenges for organic (FiBL, Rodale).
    - Innovation is underway: dual-purpose livestock breeds, cover crops, biodigested fertility inputs, and field gas sensors (FiBL, Rodale).
    - No synthetic inputs + biological nitrogen fixation + composted manure = lower emissions but requires balance and adaptation.

4. Science-Based Communication & Collaboration
    - Science must be translated for consumers, policymakers, and industry to support informed decisions (The Organic Center).
    - Collaboration across NGOs, universities, and supply chain partners advances both research and adoption (The Organic Center, FiBL).
    - Mainstreaming organic brings scale but must protect small farms and right-sized infrastructure (The Organic Center).

ACTION ITEMS FOR PANEL 5

- Expand long-term organic trials and invest in tools to measure soil health and GHG emissions directly
- Fund public-facing, peer-reviewed organic research that supports soil health, biodiversity, and climate resilience
- Support farmer transitions with targeted research, mentorship, and financial tools during 3-year conversion
- Build coalitions across academia, nonprofits, and producers to co-develop organic climate solutions
- Educate consumers and policymakers on organic's documented environmental and health benefits
- Advance nutrient management research to close the nitrogen cycle and reduce emissions in organic systems

Panel 5 – Discussion

Question 1: ***What didn't you get to in your presentation? Or if you had like 20 minutes, what would you have covered? Or if you don't like that question, my alternative question is, what do you want to reiterate about your presentation?***

Amber Sciligo - Wanted to emphasize the discussions about agriculture and climate change often overlook the significant greenhouse gas emissions and energy use associated with the manufacturing, distribution, and application of agrochemicals, including ammonia fertilizer. This industrial process also harms communities where these chemicals are produced. When comparing organic and conventional systems, organic often shows lower emissions largely because it avoids these inputs. Climate change solutions in agriculture must consider the entire system, not just on-farm practices or carbon metrics, but also include resiliency, biodiversity, and broader environmental impacts.

Maike Krauss - Stated that we have a good understanding of nitrous oxide emissions at the field level, but there are major knowledge gaps at key intersections in the agricultural system—particularly around manure management, such as composting and storage, and emissions from livestock in different housing systems. These are very hard to really measure because it's tedious work. She emphasized the need for a full-system perspective, noting that focusing only on field emissions without understanding the processes of manure handling, storage, and composting can lead to an incomplete picture. Addressing these gaps will be a priority for research moving forward, especially at the intersection of livestock and field systems.

Maike also wanted to discuss the challenges of measuring soil carbon stocks and the limitations of carbon credit systems, particularly in recognizing the long-term contributions of organic farmers. She emphasized that to accurately measure soil carbon is technically difficult and highly variable, requiring precise data like bulk density and soil composition. She thinks the idea of permanent carbon storage (e.g., 100+ years) is unrealistic for most farmers and stated that instead of relying on flawed measurements, it would be more effective to incentivize practices known to build soil carbon, rather than chasing uncertain metrics.

Andrew Smith - Andrew wanted to address the misconceptions around no-till and cover cropping in regenerative agriculture, particularly in systems that rely heavily on chemical inputs. He cited research showing that tillage alone is not a consistent driver of soil carbon—some studies found reduced tillage increased carbon, others showed the opposite. The key drivers of soil health and carbon were found to be:

- **Continuous living cover,** not just short-term cover crops
- **Diverse cropping systems**
- **Organic fertility inputs,** especially compost and manure

The cited studies included the Soil Health Institute's long-term trials on over 100 long-term sites across the U.S., the Wisconsin Integrated Cropping Systems Trial, and the UC Davis Century Experiment—all showing that organic systems, particularly those incorporating livestock or compost, led to greater and deeper carbon gains. In contrast, conventional no-till with minimal cover cropping could even reduce soil carbon at depth. He emphasized that simply doing no-till with limited cover crops in chemically managed corn–soy rotations should not be labeled regenerative, as it often fails to improve long-term soil carbon and health.

Question 2: ***Are you studying the differences in soil biodiversity and biological activity in the various systems (legumes, manure and conventional) and how they affect yields?***

Andrew Smith - - Last year they published two papers on the soil microbiome. He also knows that FiBL has done a considerable amount of work on their long-term study. At first it looked like there wasn't a lot of difference in diversity between organic systems and conventional. However, when they dug deeper into what was actually there, they found in the organic systems they have nitrogen recyclers and more nitrogen fixers—creating nitrogen from atmospheric sources. The conventional systems had almost entirely parasitic bacteria and fungi in two different ways pathogens and parasitic – meaning they live on free living nitrogen. In their second study, which was more like machine learning, the results showed some of the bacteria are parasitic—targeting the recycling bacteria.

They also did a study eliminating any fertility (fertilizer) in both organic and conventional fields and planted everything to oats to reset the rotation. They got a highly significant yield increase in the organic compared to the conventional fields. Suggesting that when nutrient inputs are withdrawn, the conventional system struggles, while the organic system continues functioning because it's built on more resilient microbials and conventional is reliant on continuous input of nitrogen. In wheat, for example, they got equal yields in the organic and conventional, but only after they applied 60 pounds of nitrogen to the conventional fields. Where it had been about three years since they put down any fertility in the organic fields. So that is the importance of stored nitrogen and the ability of microbes to recycle it.

Maike Krauss - In their long-term trial, multiple soil fertility measurements were taken and have been synthesized. And there are many publications and downloadable reports from her website. Overall, microbial communities differ between organic and conventional systems, with organic (including biodynamic) systems showing more microbial abundance and distinct composition—especially among fungi in the soil. The primary factor influencing fungal differences appears to be pesticide use. Bacteria seem more resilient across systems. Additionally, studies show that organic soils have a greater capacity for nitrogen mineralization under drought conditions.

***Question 3:* How can we increase the proportion of organically produced nitrogen in organic farming systems, given the current reliance on manure from conventionally fed livestock and non-organic inputs like hydrolyzed soy-based fertilizers? What are the implications for long-term sustainability and integrity of organic production if much of the nitrogen used originates from conventional sources?**

Maike Krauss - The nitrogen issue in organic systems is indeed complex. A significant portion of nitrogen still enters via conventional sources, such as manure from conventionally fed livestock and biogas digestate from municipal waste. These sources can introduce additional problems and are only partially allowed in organic farming.

A fully closed nitrogen cycle would ideally include returning human waste to the soil, but this is currently illegal in many places, such as Europe. Increasing legume use to fix nitrogen biologically has limits due to soil fatigue, and forage legumes are more effective than grain legumes in contributing to nitrogen.

She states rather than only focusing on nitrogen sources, managing nitrogen losses is critical—particularly nitrate leaching and ammonia emissions. One major loss point is after terminating forage legumes like clover or alfalfa, especially before winter when there's no crop to absorb the mineralized nitrogen. Crops like winter wheat are often too small to uptake nitrogen in colder months, leading to losses.

Emerging research, such as isotope labeling of cattle slurry, shows that only a small portion of applied nitrogen is directly taken up by plants. Most enter the soil pool and is later mineralized, highlighting the importance of having a crop ready to capture nitrogen at that later stage.

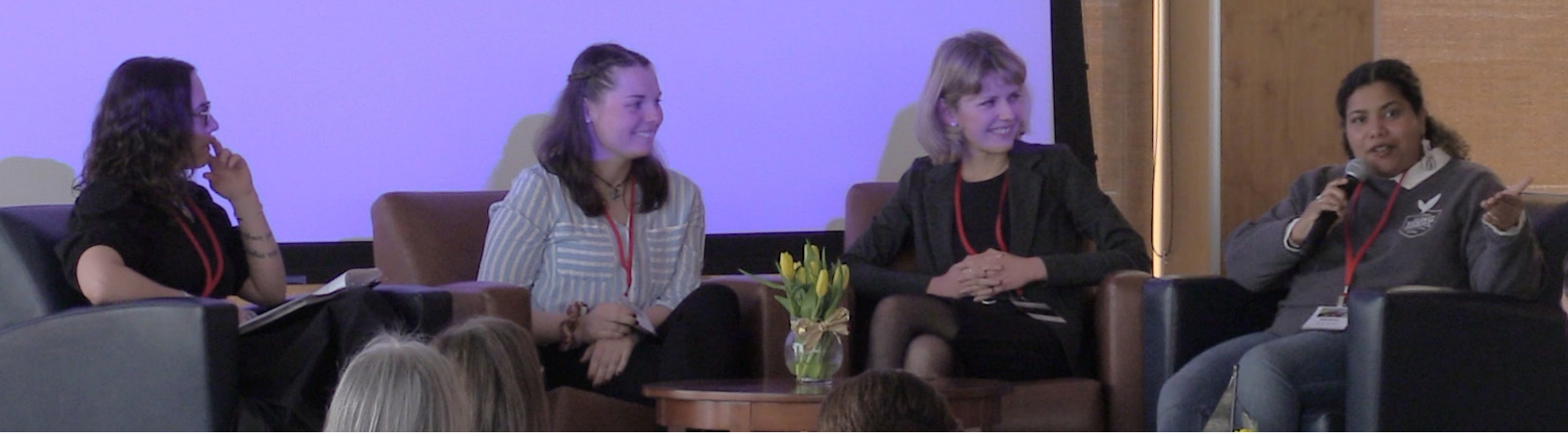
Amber Sciligo - A key challenge in organic agriculture is the lack of livestock integration. Historically, animals were part of farming systems, but they've been removed—now, significant resources are spent researching

how to reintroduce them. Research shows clear benefits to soil health, pest management (e.g., orchard grazing), and climate resilience. However, reintegration is complicated by socio-political and economic barriers, including food safety concerns. Despite these tensions, restoring animal integration is vital for the long-term sustainability of organic systems.

Question 4: ***Given the widespread use of center pivot irrigation and the rapidly declining aquifers, how might organic systems, especially with their potential to build soil organic matter—offer advantages in water-limited regions? And specifically, what role do you see for biochar in enhancing water retention and carbon sequestration in organic systems, particularly considering the on-farm availability of biomass like cleared fence lines?***

Maike Krauss – FiBL is conducting work on biochar, though there are strict regulations in place. In Switzerland, biochar must be certified to ensure it doesn't contain harmful aromatic compounds that can result from poor pyrolysis. While biochar is generally seen as beneficial, the main limitation is scale—producing enough high-quality biochar to make a real impact requires a large amount of wood or biomass, which is a significant bottleneck.

Amber Sciligo – As we are experiencing changes in weather, and variable weather with temperatures rising and rainfall increasing, we have a lot of places experiencing drought. Many dryland regions exist in the U.S. and globally; for example, about 50% of India practices dryland farming organically. Asia, through IFOAM Organics, is leading the creation of the Drylands Organic Agriculture Network (DOAN) to foster global knowledge sharing among dryland farmers. She expresses hope for greater participation from the U.S. in these collaborative efforts.



Panel 6: Organics as a Solution for Rural Development and Supporting the Next Generation of Farmers

Panel Experts: *Marina Grölz, Farmer, Rotgrabenholf Farm,* ***Vanessa García Polanco,*** *Government Relations Director, National Young Farmers Coalition,* ***Lilliana Stefanovic,*** *Researcher, University of Kassel.* ***Moderator:*** ***Cathleen McCluskey,*** *Policy & Advocacy Director, Organic Seed Alliance*

MARINA GRÖLZ , Farmer, Rotgrabenholf Farm

Marina shared her personal and compelling story of how she became a next-generation farmer at age 21. She has both a bachelor's and master's degree in agriculture and crop science, which guided her in taking on the responsibility of her family farm after her father died. Her organic farm is 200-hectares of arable land in Germany, with current crops of clover seed, wheat, and oats.

Her journey to become a farmer began in 1990 when her father decided to start farming, he did not have any farming background but was a gardener. At that time in her village there were 15-20 small farmers with 10-15 hectares each. However, all these farmers quit farming within 15 years. As her father's farm was growing and he became more successful, he decided to relocate the farm to a larger area outside the village, and in 2009 the farm transitioned to organic. Marina's father died at the end of 2019, and she decided to take over the farm.

Marina talked about the duality of her academic and farming experiences—balancing theoretical learning with on-the-ground realities—and the pressure of proving herself as a young woman in a traditionally male-dominated and often conventional farming environment in her village. She remembers listening to professors and thinking, thanks for sharing, but that is not going to work on my farm. And then sitting on her tractor the next day asking why is no one researching actual farm problems?

In 2024, she received notice that 60 hectares of her farm were slated to be used for a new underground powerline, jeopardizing soil health and organic certification on those fields. Rather than returning to conventional methods, Marina recommitted to organic farming, aiming to preserve and protect the remaining land. With the help of a close friend who joined as a full-time team member, she is now shifting focus toward vegetable and specialty crop production and community-based, sustainable farming.

Marina emphasized the importance of peer support, on-farm research, and intergenerational collaboration in shaping the future of organic agriculture. She called for organic research to be grounded in farmers' real-world needs and encouraged the organic community to continue evolving while honoring past achievements. Her message ended with a lighthearted but powerful lesson from her journey: "Confidence in difficult times—and red nail polish to hide the dirt under your fingernails."

VANESSA GARCÍA POLANCO, Government Relations Director, National Young Farmers Coalition

Vanessa began her presentation with her personal background of a daughter of a farmer in Dominican Republic, where her family's farm produces the most chicken products for the entire country. She grew up around Concentrated Animal Feeding Operation (CAFOs) and monoculture agriculture and didn't see an organic farm until she moved to the United States. Challenging the common assumptions about the Global South and emphasized the unique path that many immigrants and BIPOC farmers take into sustainable agriculture.

The National Young Farmers Coalition (NYFC), with 30 chapters throughout the country and policy team in Washington D.C., believes in a future of farming that is free of racial bias, accessible to communities, orientated towards well-being and connected and concerned about health over profit. They believe farmers and ranchers are the leaders and are on the front lines of climate action and that farming should be a place where human rights are respected and have the right to food and place. NYFC is an intersectional, policy-driven organization advocating racial and economic justice, climate action, farm labor, and farmer well-being. With a strong emphasis on federal policy change, NYFC has played a central role in achieving key wins for young farmers, including:

- The creation of the USDA microloan program,
- Securing $300 million in community land access funding,
- Supporting beginning farmer coordinators in every U.S. state, and provide millions of dollars for Farmland Protection
- Championing farmer mental health and discrimination redress programs.

They are successful as they take time to build relationships with USDA and Congress, especially the Agricultural Committee members. They also challenge the narrative of who is a farmer, small farms, large farms, and urban farms through education, policy, and policy interventions that really help people enter agriculture and stay in agriculture. They focus a lot on communications not only to the policymakers but to the farming community of young farmers through their social media platforms but mainly through building community-based chapters that serve as hubs for organizing, mutual aid, and leadership development.

Vanessa highlighted three major policy focus areas:

1. **Land Access** – Addressing the 40% of farmland expected to transition over the next two decades.
2. **Climate Resilience** – Equipping young farmers with tools to address the climate crisis.
3. **USDA Accountability** – Ensuring federal programs work for beginning, organic, and non-conventional farmers.

Despite recent successes, Vanessa raised serious concerns about the future with federal freezes and funding cuts. She underscored the urgent need for stable and transparent policies that include young/beginning farmers, especially during the new the Farm Bill negotiations.

Vanessa concluded by reminding the audience that investing in young and organic farmers is strategic and directly tied to the future of our national food security and climate resilience. She encouraged everyone throughout the supply chain to include young farmers with respect to land access, education, and market access.

LILLIANA STEFANOVIC, Researcher, University of Kassel

Lilliana's presentation centered on Bio-districts—also known as eco-regions or organic districts— and the insights from a relatively new project, called New Pathways and the food hub model in the Leipzig region. Bio-districts are defined as a geographical area where various stakeholders representing the value chain from farmers to public authorities enter into formal agreements to sustainably manage local resources based on the principles of organic farming and organic consumption. Bio-districts are guided by IFOAM's four organic principles: health, ecology, fairness, and care. Bio-districts integrate short supply chains, public procurement of organic foods (e.g., in schools), and participatory governance to promote territorial development and social-ecological regeneration. With a mission of spreading organic production practices but also to support small scale farmers while strengthening the rural-urban link through ecotourism, food culture and food education.

The first Bio-district in Europe was Cilento, in southern Italy which was established formally in 2009 (began in 2004) and now includes 1032 small-scale organic producers across 41 municipalities. Research conducted on Cilento included interviews and focus groups of the key actors (farmers, municipal employees, Bio-district president, NGOs, associations, research, academia and other supply chain actors) with resulted in several key findings:

- Valorization of farming and the dignity of being an organic farmer
- Strengthened community identity, rural regeneration, and youth interest in farming
- Recognition of organic farming and food systems' contributions to multiple Sustainable Development Goals (SDGs) from the United Nations, particularly SDGs:
    - 2 - Zero hunger (food nutrition and food security)
    - 4 - Quality education
    - 5 - Gender equality,
    - 8 - Decent work
    - 12 - Responsible consumption and productions
    - 15 - Life on land

Since the establishment of Cilento, there are more Bio-districts being developed in Europe, Africa, Asia, South America, and Canada.

Lilliana also highlighted findings from the New Pathways Project, which is developing a hybrid food hub model in Leipzig, Germany. Rather than constructing new facilities, the project leverages existing infrastructure and moderates demand and supply chains through digital tools and analogous impulses to support small-scale, mostly organic farmers by connecting them with institutional buyers, particularly canteens and public kitchens. Key innovations include:

- A digital "marketplace" to reduce food waste by redistributing surplus produce
- A regional seasonal calendar tailored for institutional cooks
- Farmer–cook "speed dating" sessions to align supply with kitchen needs

The project aims to promote planet-friendly menus in the institutional catering and bio-regional supply chains, improve farmer visibility and viability, and ultimately revitalize local food economies. Test weeks for the food hub's implementation are scheduled for September 2025.

She ended her presentation with a call for further research and replication of Bio-district models, context-specific food hub innovations, and early and widespread food education to reconnect people with food origins and culture.

COMMON THEMES FOR PANEL 6

1. Farming as a Personal and Political Journey
   - Farming is part of their family identity.
   - Agriculture is both deeply personal and inherently political, shaped by gender, race, and access to land and knowledge.

2. Centering Farmers' Voices and Realities
   - Identified the disconnect between academic research and real farm challenges, advocating for on-farm, farmer-led research.
   - Farmers need to shape the policies that govern them, e.g., bio-district's model centers multi-actor, farmer-involved governance.

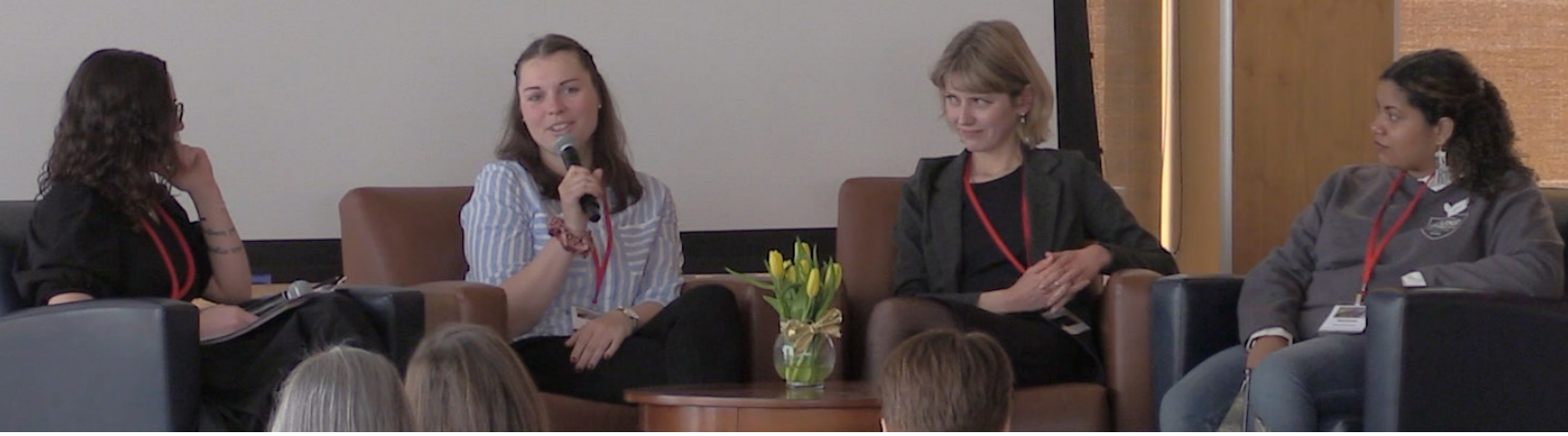
3. Land Access is Urgent and Foundational
   - For young farmers
   - Farmland transition policy needs to ensure equitable land access
   - Bio-districts as one model for protecting land and supporting smallholders.

4. Systems of Support: From Peers to Policy
   - Peer and community support is vital for new and young farmers and for farmers transitioning to organic
   - Bio-districts use formal agreements, public procurement, and local governance to structurally support small farmers.

5. Climate and Cultural Resilience
   - Organic farming is framed as a solution to climate and social crises.
   - Projects like Leipzig's food hub and Bio-districts combine ecological sustainability with cultural regeneration—food education, recipe calendars, and valuing farmer dignity.

ACTION ITEMS FOR PANEL 6

- Fund and elevate farmer-led research to reflect on-the-ground needs.
- Expand peer-to-peer learning and intergenerational collaboration.
- Protect farmland through policy, public awareness, and community land trusts.
- Prioritize USDA reform and federal accountability to serve young, small-scale, and organic farmers.
- Replicate and adapt Bio-district models to new regions, emphasizing participatory governance and short supply chains.
- Invest in youth-centered food education and regional food culture.
- Make climate action central to organic and agricultural policies—with farmers as frontline leaders.



Panel 6 – Discussion

***Question 1:** What opportunities do you see for future collaboration?*

Vanessa García Polanco - She sees exciting opportunities for international collaboration and learning how other countries support young farmers. She is interested in understanding and possibly replicating successful infrastructure and advocacy models. She also highlighted the importance of close collaboration between farmer-serving organizations and government agencies, using the example of the National Young Farmers Coalition's past relationship with USDA.

Marina Grölz - She sees strong collaboration opportunities through direct, local market relationships. She shared an example of selling potatoes and onions directly to regional supermarkets without intermediaries, coordinated informally via WhatsApp. This direct connection fosters transparency, better pricing, and consumer awareness of the supply chain. She believes such grassroots, relationship-based models can serve as a foundation for future collaborative efforts.

Lilliana Stefanovic - She advocates for stronger links between research and practice, noting that research often fails to reach farmers unless it's grounded in real-world collaboration. Her experience in the Leipzig project highlighted the value of working directly with farmers and cooks, creating more impactful and fulfilling research. She also emphasizes the need to expand international collaboration, especially between Europe and North/South America.

***Question 2:** What resources do you need for future success?*

Marina Grölz - She highlights the need for simpler, more accessible funding and support systems for farmers. She humorously noted that in Germany, she aged out of the "young farmer" program at 25 without using the available funds, as initially she focused on more urgent challenges. She stresses that essential resources like land access and basic funding are often buried under overly complex bureaucracy, making it hard for farmers who just want to focus on farming—not navigating legal or administrative systems.

Vanessa García Polanco - She emphasizes two key needs: 1) All research and collaborations in food and agriculture should intentionally consider their impact on young farmers, particularly around land access, financial opportunity, racial equity, and community building. Her organization uses 20-question rubric to evaluate whether a project truly supports the next generation. 2) She calls for more vocal and political advocacy. Rather than symbolic support, she urges allies to push policymakers and legislation to actively prioritize and fund initiatives for young farmers. 3) She argues that the most critical resource young farmers need is political power.

Lilliana Stefanovic - She states a major challenge in research in many countries is the increasingly short-term and unstable funding. Short duration funding undermines meaningful collaboration and long-term impact. Plus, many research institutions' positions are tied to the grant funding they bring in, leading to job insecurity and making it hard to attract and retain talented young researchers.

Marina Grölz - She emphasizes the need for research to be communicated in a way that farmers can easily understand, instead of only publishing in academic journals that are difficult for farmers to interpret. She requests research to be translated into practical, understandable information that directly supports farmers in their work.

***Question 3:* How can we better prepare and support young graduates to manage and operate farms independently bridging the gap between technical training and the real-world skills needed for successful, continuous production and farm leadership?**

Vanessa García Polanco - She explains that while training programs for young farmers are important, they are not enough on their own. Over the first 10 years, their coalition focused heavily on education and training, but they realized that many trained individuals still couldn't become farm managers.
The main barriers were lack of access to land and credit. Without these critical resources and a financial safety net—such as loans or microloans—young people cannot transition into farm leadership, regardless of their training. Real opportunity requires both education and structural support.

Kat Becker (farmer in audience): She highlights the value of apprenticeship programs like Wisconsin's organic vegetable apprenticeship, which effectively trains farm managers and improves job opportunities. However, she emphasizes that off-farm jobs often limit young farmers' ability to focus on and grow their businesses. Drawing from personal experience, she argues that trying to juggle farming, children, and low-paying off-farm work is unsustainable and shouldn't be the basis for policy. Access to healthcare is also a major barrier, and she advocates broader structural solutions like universal healthcare to better support beginning farmers.

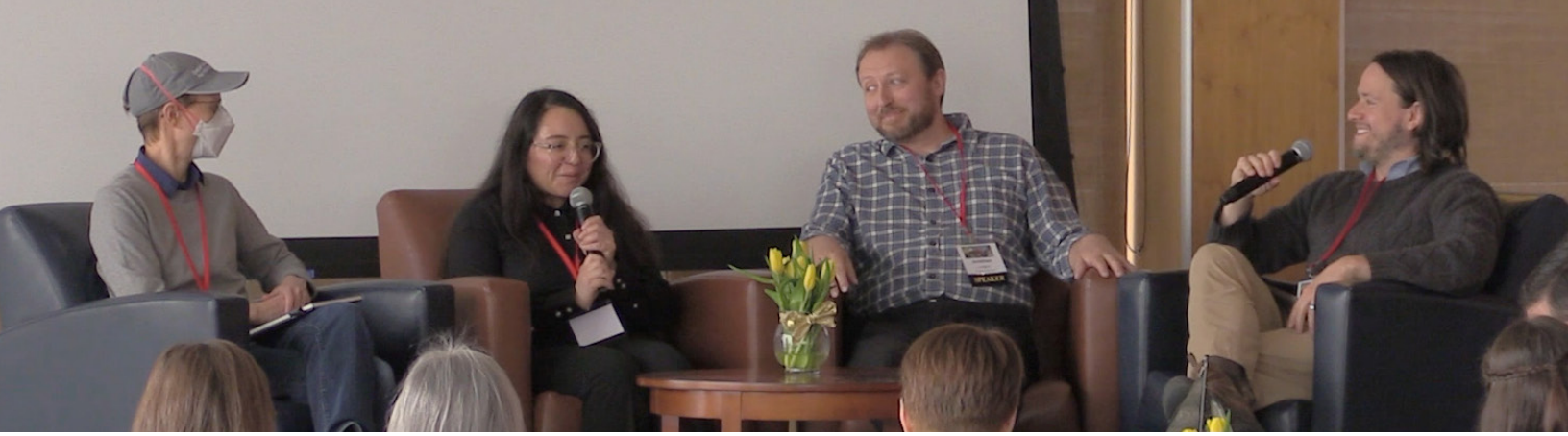
Vanessa García Polanco - She affirms that the main barriers to entering and staying in farming in the U.S. include lack of access to land, capital, and housing in rural areas. Additional major challenges are access to healthcare (like Medicaid), burdensome student loan debt, and lack of childcare, especially for young farmers who are also parents. These structural issues make it extremely difficult for new farmers to start and sustain farm operations.

***Question 4:* What broader impacts—positive or negative—have you observed in the surrounding farming community as a result of establishing a young farm in the area?**

Marina Grölz - She observed strong community support after taking over their family farm. Local residents, familiar with the family's story, chose to buy her products to support the new generation. Additionally, some landowners offered to rent land to her, recognizing and wanting to encourage her efforts.

Lilliana Stefanovic - She highlights how bio-districts are centered around strong community connections and territorial development. In Cilento, for example, schools educate children about food, climate, and sustainability through hands-on experiences like composting and gardening, creating deep community bonds. Lilliana also shares hopes for a similar impact in Leipzig through their food hub project. The goal is to better connect local organic farmers with consumers, especially in public and private catering, and promote sustainable, regional diets. The project aims to build community ties between rural farmers and urban residents, though challenges like shifting workplace food culture remain.

Vanessa García Polanco - She explains that most young farmers' business structure is more as community hubs than profit-driven businesses. These farms often address food insecurity by giving away food, hosting educational programs, and creating spaces for community engagement. Many are established in food desert areas with the goal of having a positive local impact. A huge motivation for farmers is to be at the epicenter of a community, focusing on serving and uplifting the community rather than solely running a business.



Panel 7: Organics as a Solution to Enhance Biodiversity

Panel Experts: ***Jonathan Lundgren,*** *Executive Director, Ecodysis Foundation;* ***Karina Garcia,*** *Postdoctoral Researcher, Handsome Brook Farms;* ***Julie Dawson,*** *Professor, University of Wisconsin–Madison, College of Agricultural and Life Sciences.* ***Moderator:*** ***Katie Peterman,*** *Program Manager, University of Wisconsin–Madison, UW Organic Collaborative*

JONATHAN LUNDGREN, Executive Director, Ecodysis Foundation

Jonathan stated that he is a former USDA scientist and now a regenerative farmer and beekeeper. He shared his journey from traditional academic science to hands-on, land-based research. Disillusioned by the lack of real-world impact in his USDA work—despite high scientific metrics—he left the agency and founded Blue Dasher Farm, a regenerative operation in South Dakota that serves as both a farm and a training ground for future scientists.

"If we wanted as scientists to help actually solve these problems, then we were going to have to not just expect farmers to change, but expect ourselves to change as well, and start re identifying what [are] metrics of success."

Through his travels researching regenerative farms he found that,

"Regenerative farmers farm smaller and better, not bigger and simpler".

They grow food for communities not commodities. It doesn't mean they have small farms, but how we perceive what a good farm is.

Through the 1000 Farms Initiative, his team has deployed scientists to farms across the U.S., collecting comprehensive, system-wide data on regenerative and conventional practices. Replicating 35 different cropping systems. These include metrics on biodiversity, soil carbon, water infiltration, economics, nutrition, behavior sociology, human health, and community impact. With the goal of being able to empirically tease out what success looks like, by identifying practices contributing to success and removing hurdles for the next generation who are trying to rapidly adopt these practices and take regenerative agriculture from anecdotal success stories to predictable, systematic, transferable, scalable results.

Preliminary results show that regenerative farms support significantly more biodiversity, store more carbon (even at deeper soil levels), and can match or exceed conventional yields without the high input costs. Regenerative agriculture, he argues, is not only viable, but also essential for reversing environmental degradation, improving human health, growing healthy food, and restoring rural economies.

From left to right: Adam Warthesen, William Tracy, Marina Grolz, Vanessa García Polanco, Lilliana Stefanovic, Katie Peterman and Matthew John

KARINA GARCIA, Postdoctoral Researcher, Handsome Brook Farms

Karina presented her biodiversity research on different organic agricultural ecosystems, focusing on ecological intensification, harnessing biological and ecological processes to promote biodiversity and ecosystem services, with focus on birds, arthropods, and pasture-based poultry systems. She presented three different systems:

Case 1: Wild Birds in Organic Strawberry Farms (California Central Coast) – for farmers birds can be perceived as pests to crops (herbivory and frugivory actions), beneficial (insectivorous birds), or harmful (vectoring pathogens to food born illnesses). Her research looked at the net effects of all birds within an agro-ecosystem. Using DNA-based analysis, researchers identified which bird species provided pest control (e.g., by eating Lygus bugs) and which caused crop damage. A multi-site study revealed that semi-natural habitats, both on and around farms, increased beneficial bird abundance and overall bird biodiversity. A net impact analysis found that bird communities in more diversified landscapes had greater multifunctionality, supporting the idea that enhancing semi-natural habitats can lead to ecological benefits without compromising food safety or crop yields.

Case 2: Pastured Poultry and Arthropod Communities (University of Kentucky) -Very little research has been done on the ecological impacts of pastured poultry operation and how it pertains to arthropod biodiversity. In trials with broilers integrated into cover crop systems, the presence of chickens significantly reduced plant-dwelling arthropods due to habitat destruction but increased ground-dwelling arthropods, likely due to manure-driven nutrient enrichment. These findings highlight contrasting ecological effects of poultry based on arthropod niche and habitat use.

Case 3: Regenerative Egg Farming Project (Kentucky) – the goal was to measure biodiversity in arthropods as farmers adopt different regenerative practices on their pastures, such as tree, shrub and cover crop plantings. While early results showed no differences between control and experimental plots (due to the short timeframe), insect abundance, Hymenoptera's (namely ants) and Hemipterans (true bugs), was higher closer to chicken barns, suggesting a nutrient-driven response. Additionally, pollinator monitoring identified 20 bee genera, informing current efforts to install diverse pollinator habitat across partner farms.

In conclusion, she found that her research underscores the importance of habitat diversification and management intensity in shaping biodiversity outcomes in organic and regenerative systems.

JULIE DAWSON, PROFESSOR, University of Wisconsin–Madison, College of Agricultural and Life Sciences

Julie presented on a participatory plant breeding project focused on developing a winter wheat variety tailored for organic systems in the Upper Midwest. This initiative involved researchers, farmers, bakers, nonprofits, and universities (UW-Madison and Cornell University) with the aim of addressing the need for biodiverse, regionally adapted grain varieties that meet both agronomic and artisanal baking requirements.

The project began with insights from European models of seed sovereignty and participatory breeding, particularly her experiences in France with INRA and farmer networks. Learning from this experience, this project focused on developing a regionally adapted hard winter wheat, that is winter hardy, resistant to the disease Fusarium head blight, and adapted to organic systems. It was also critical for it to have high quality protein and perform well in artisanal bread. This work was supported by USDA's Organic Research and Extension Initiative and rooted in the needs of organic farmers and regional food systems. The overarching goal of this project was to create a wheat variety that really worked for organic farmers, gave them the option to have a high value winter grain, and then connected them to the increasing demand in regional food systems for staple products.

Breeding took place through a multi-stage process: initial selection at research stations for disease and winter hardiness, followed by on-farm trials in Illinois, Wisconsin, and New York. The breeding population included genetically diverse material from crosses between French bread wheat varieties and varieties that performed well in organic systems in the northern US (midwest and northeast). The final variety was derived from a cross between *Rouge de Bordeaux and Warthog.* The team incorporated a red clover intercrop during selection to enhance organic system compatibility.

An exciting feature of the project was the involvement of 40 artisan bakers across the Midwest and Northeast to test the trial grains in standardized sourdough bakes. The bakers provided detailed feedback on stability, dough performance, and flavor. This information, along with the selections of farmers from on-farm trials, guided variety selections, ensuring end-use suitability and quality from farm to table.

The resulting variety, named 'Bickford,' honors the late Paul Bickford, a pioneering organic farmer and community-builder in Wisconsin, 'Bickford,' is genetically diverse, adapted to organic systems, performs well with intercropping, and meets quality demands for artisan baking. It also represents the first release in what is hoped to be a continued regional breeding effort.

COMMON THEMES FOR PANEL 7

1. Rethinking Success
   - Go beyond academic output to include biodiversity, soil health, nutrition, and rural viability.
   - Focus on multifunctionality and net ecological benefit.
   - Success includes varietal adaptation, farmer usability, and artisanal baking quality.
2. Systems-Level Science
   - On-farm trials, diverse cropping systems, and regionally relevant contexts.
   - Multi-dimensional metrics that integrate soil, biodiversity, economics, and community impact.
3. Working with Nature
   - Regenerative practices to restore soil and ecosystems.
   - Habitat diversification to support beneficial organisms.
   - Breeding for compatibility with organic systems
4. Diversity as Resilience
   - Genetic (plant breeding), ecological (species & habitat), and stakeholder (farmers, bakers, researchers).
   - Promoted as key to long-term resilience and adaptability.
5. Collaboration & Participation
   - Scientist-farmer partnerships in breeding, biodiversity trials, and systems science.
   - Inclusion of end-users (e.g., bakers) to guide research outcomes.

ACTION ITEMS FOR PANEL 7

- Fund interdisciplinary, systems-based, on-farm research.
- Shift incentives from commodity yield to ecosystem services and food quality.
- Support regionally adapted seed systems and breeding for organic production.
- Invest in participatory models that include farmers, researchers, and local communities.
- Promote habitat diversity and crop-livestock integration across landscapes.
- Develop scientific frameworks that center rural resilience, nutrition, and human health.
- Train new leaders in ecological thinking, practical science, and cooperative problem-solving.

Panel 7 – Discussion

***Question 1:** What are the key opportunities for collaboration to strengthen the connections between organic agriculture and biodiversity—from crop genetic diversity to broader ecosystem scales?*

Karina Garcia - The opportunities for collaboration are endless. For example, in pastured poultry systems, there's a real need to identify perennial plant varieties that can better withstand the physical impact of poultry. More broadly, partnering with universities and graduate students can be incredibly valuable, especially when working with established farm networks—like Handsome Brook Farms—for on-farm research. One of the biggest challenges in grad school research was often farmer recruitment, and connecting through these networks could make that much easier. It's about straightforward collaboration.

Julie Dawson - Developing economically viable options for farmers to diversify, especially crops for direct human consumption or short-chain livestock feed—can support the creation of synergistic, regenerative systems. Integrating crops and livestock is challenging, but targeted solutions can help. Research shows that genetic diversity within crops (e.g., varied plant heights and structures) can enhance beneficial insect and arthropod populations. By documenting these biodiversity benefits, such practices can inform policy and conservation practices and help farmers get credit for encouraging biodiversity—not just for taking land out of production or fencing off streamways but by building biodiversity into their system.

Jonathan Lundgren - A key opportunity lies in changing our collective perception of biodiversity. Currently, much of our attention focuses on managing pests, often at the expense of the broader ecological community we depend on. We need to change the dialog; pests are not the core problem—they're indicators of deeper systemic imbalances. Promoting biodiversity requires a cultural and mental shift toward understanding all species, even pests, as part of a larger ecological narrative. This is a cultural shift that needs to happen, and it requires a unified and collaborative approach to communicate this.

***Question 2:** In your work, have you found that on-farm biodiversity—and the ability to see and experience helps strengthen connections between farmers, scientists, and broader communities?*

Jonathan Lundgren - Change happens through experience. To build stronger connections between farmers, scientists, and society, we need to create more opportunities for experiential learning. That's how those meaningful linkages form. For him, it starts with getting kids out on farms—handing them sweep nets, letting them explore, observe insects, and understand how vital life is to every process on a farm. It also helps them see the harm that comes from practices that kill life indiscriminately.

Julie Dawson - In my experience of always working with organic farmers, it's usually the farmer who already has a highly biodiverse system and a systems-level perspective. Meanwhile, the scientific team often comes in focused on a single issue. Expanding our scientific approach to recognize those broader system dynamics—and identifying gaps where we can contribute—is key. I've learned a lot from farmers about how pieces of the system work together in ways that you might not expect.

Karina Garcia - Has had similar experiences where farmers and their families, especially the children, show great interest during fieldwork like setting up traps. Farmers want to understand what's happening on their land, and discussing sustainability alongside biodiversity resonates deeply, as many are farming their farms for future generations.

***Question 3:** What resources—at any scale—do you see as most critical to support continued success and growth in your work?*

Julie Dawson - Although we need research funding, it's more important to support the farmers that are getting started, because if they have actual choices, then I think a lot of this will follow, but many times, their choices are

constrained by our farm safety net that is fairly simple and maybe doesn't fit everybody. Economic choices are limited by the number of companies offering agricultural inputs, so giving farmers more choices and removing constraints that may be artificial would be the most important.

Karina Garcia - Scaling up biodiversity monitoring across farms has been challenging due to the intensive nature of the work. There's a need for long-term, low-effort methods that still offer clear biodiversity snapshots—emerging tools like AI and bug boxes show promise. Additionally, there's a limited supply of organic native pollinator plants, fruit trees, and nut trees, which remains a key resource constraint for organic farms.

Jonathan Lundgren - To drive adoption of organic and regenerative practices, we need to look beyond financial or practical barriers—which often aren't the true constraints—and instead focus on the sociological and behavioral factors that limit change. A deeper, sensory connection to thriving ecosystems can shift mindsets; if people could viscerally experience the richness of a biodiverse prairie or regenerative farm, it would create a powerful emotional and cognitive shift. Ultimately, meaningful change requires addressing not just systems, but how people relate to them.

***Question 4:* Based on my experience mixing multiple varieties on my organic farm in Germany — which has led to more stable yields, better protein content, and reduced risk — I'm wondering: why is varietal mixing at the genetic level not more widely discussed or encouraged in organic and conventional supply chains? And what would it take to shift the mindset of downstream actors like processors and certifiers to value genetic diversity, rather than insisting on single-variety conformity, even when the results clearly show benefits for resilience and quality?**

Julie Dawson - Your observations are strongly supported by research from Germany, Oregon, and the UK, which shows that varietal mixtures tend to produce more stable yields and often match or exceed the quality of the best individual component. Mixtures can also lead to natural outcrossing, creating new, resilient populations over time – especially valuable under increasingly unpredictable weather conditions. Meadowlark, Organics, a local organic farmer, has a population variety that they created by putting multiple varieties of wheat together and, under some stress, will outcross a bit. So, you get more than just a mixture. You get a new variety when you harvest seeds of the same genetically diverse population every year. While genetic diversity alone isn't the full solution (system-level and perennial crop diversity are also needed), it's a key part of building resilient systems. I think we need a lot more people doing what you're doing, with more farmers experimenting as you have will help shift the system.

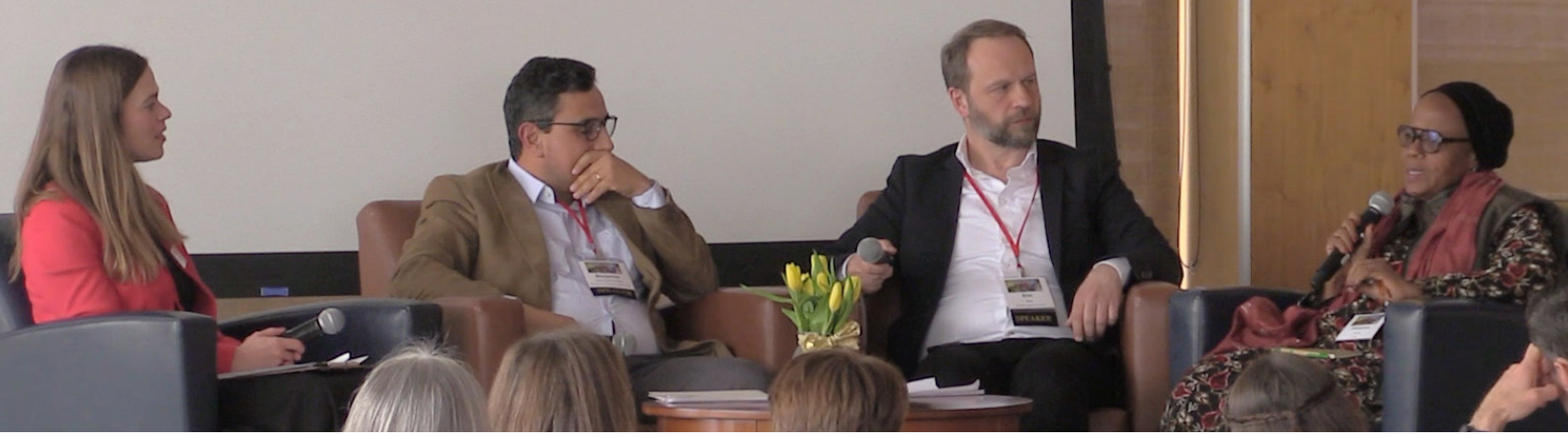
***Question 5:* In Europe, there's often a confrontational tone between the organic and regenerative movements, even though at their core, they share many of the same goals. From your perspective, what makes "regenerative" seem more attractive or 'sexy' to many new farmers compared to organic? And what does the organic movement need to do to better connect with and support this new wave of motivated farmers who want to farm differently?**

Jonathan Lundgren - I think the identity of organic has really evolved over the years. The USDA certification process, while important, has also posed challenges – especially as it's been diluted by things like hydroponic systems that many feel don't align with the original philosophy. That's led to some deeper questioning within the movement. In my view, the most regenerative farms are essentially organic in practice. There's a lot of overlap between the two at their best. That said, not all regenerative farms meet organic standards, and now we're seeing a similar identity struggle within the regenerative space itself – with different groups competing, new certification programs emerging, and increasing attempts to monetize the concept of "regeneration." Ultimately, my belief is this: by the time we truly fix our food system and find our place on this planet, we may not even be using the terms "organic" or "regenerative" anymore. And that's fine with me. What matters most is supporting farms that grow real food and real life – for their communities, for their ecosystems, and for future generations. We could call it "moon farming" for all I care, as long as it gets us to where we need to go.

Question 6: ***We've all probably heard the saying that there are a billion microbes in a teaspoon of soil — and even when you identify 16,000 different entities, many of them don't even have names. So, this is more of a philosophical or speculative question: Based on your work, do you have any hints or intuitions about what this vast unknown microbial world might reveal to us in the big picture? Even if it's just a guess — what do you think we might discover?***

Jonathan Lundgren - We've identified about 14,000 species so far from within our food system – around 10,000 of those are bacteria and fungi, and the remaining 3,000 to 4,000 are insects. The scale of biodiversity truly defies complete understanding. At some point, we have to accept that we may never know every species that's out there – but that doesn't make them any less valuable.

That's a difficult thing for a mechanistic scientist to admit. It touches on a space that borders on faith or even spirituality that I believe we need to restored. And I don't mean that in a preachy way; it's just something I've personally experienced in my own life and work.



Panel 8: Global Policies to Support Organic Solutions

Panel Experts: ***Mwatima Juma,*** *Chairperson, Tanzania Organic Agricultural Movement,* ***Benjamin Dia Osorio Filho,*** *Professor, Universidade Estadual do Rio Grande do Sul,* ***Eric Gall,*** *Deputy Director, IFOAM Europe*

MWATIMA JUMA, CHAIRPERSON, Tanzania Organic Agricultural Movement

Mwatima introduced herself as a farmer, mother, grandmother and activist from Tanzania with her organic farm located in Zanzibar, where she grows fruits and vegetables. She is the chair of the Tanzania Organic Agriculture Movement (TOAM), where she helped shape national policy, emphasizing the importance of preserving agricultural knowledge and ecosystems in the face of rising chemical dependency.

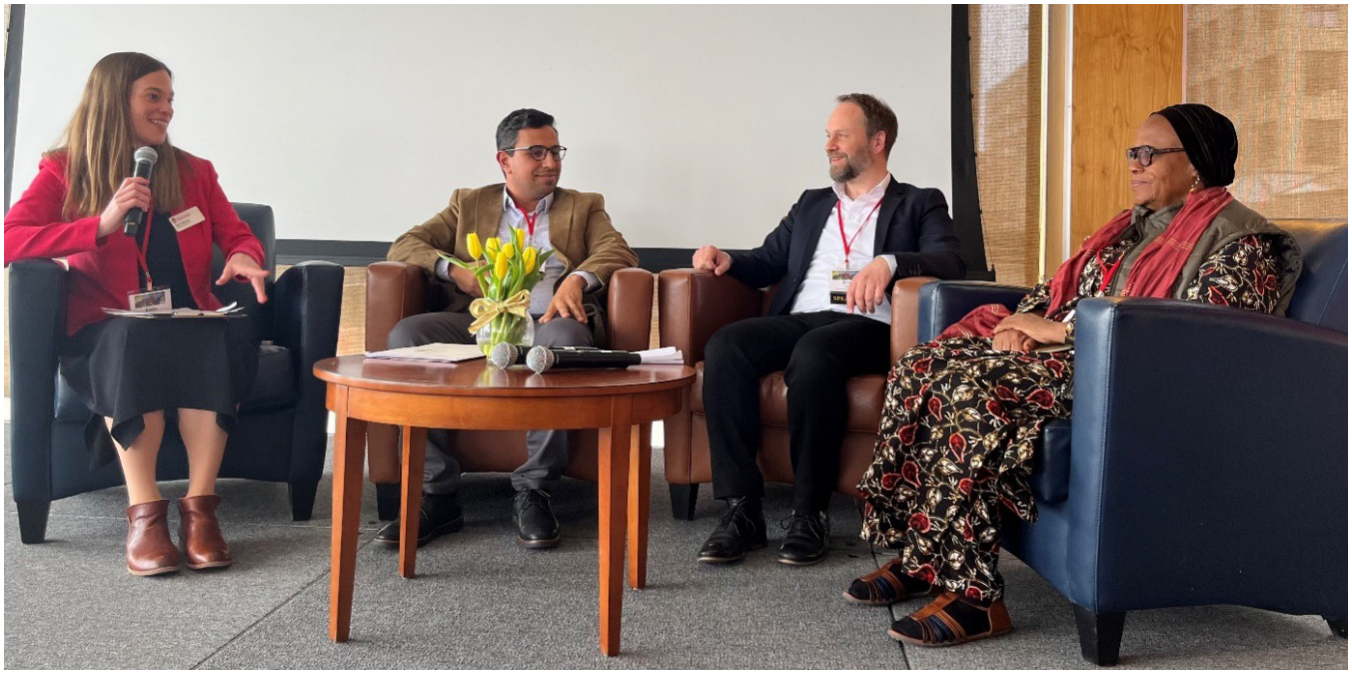
Initially focused on changing farmer behavior and convincing them to stop using pesticides. However, Mwatima and her colleagues soon realized that true transformation required engaging policy makers and challenging systemic pressures to increase chemical fertilizers and pesticide use. Despite early resistance—including rejection by East African Council citing the Abuja Declaration's fertilizer targets and the desire to have western countries' food sufficiency and the only way to farm is to follow their way of farming with inputs of synthetic fertilizer and pesticides. However, persistence and strategic framing focusing on the soil and human health benefits of organic agriculture led to growing recognition of ecological organic agriculture.

Mwatima described the multi-year, multi-stakeholder process of developing Tanzania's National Ecological Organic Agriculture Strategy, launched during a national conference in Dodoma. The strategy, supported by civil society and partially adopted by government, identifies 12 strategic objectives, with six prioritized for implementation.

1. Access to non-chemical inputs
2. Revitalization of traditional knowledge
3. Market development
4. Land use planning integration
5. Sustainable investment promotion
6. Strong coordination mechanisms

She emphasized the importance of inclusivity, deep consultation, collaboration, trust, political will, and consistent funding, calling for long-term philanthropic support rather than short-term projects. The strategy has already inspired similar processes in Kenya and Uganda.

Mwatima concluded by stressing the need to support farmers in transition—especially those in between systems—and called for policies that provide hands-on assistance and recognize organic as a public good. "We may call it ecological or organic or something else—but at its heart, this is about growing life for our communities, our land, and our future."



From left to right: Katie Peterman, Benjamin Dias Osorio Filho, Eric Gall, and Mwatima Juna.

BENJAMIN DIA OSORIO FILHO, Professor, Universidade Estadual do Rio Grande do Sul

Benjamin Dia Osorio Filho, Professor, Universidade Estadual do Rio Grande do Sul

Benjamin introduced himself as an agronomist and organic grain farmer in southern Brazil. He presented an overview of public policy developments and implementation challenges for organic agriculture in Brazil.

He highlighted the country's rich agricultural diversity, noting stark contrasts in crops and climate from the tropical north to the subtropical south. In the north, for example they grow cassava and cocoa, while in the south they grow grains such as wheat and rice. Throughout the country they grow corn and soybeans. Organic agriculture still represents a small fraction of total agricultural production in Brazil, but is growing, particularly in southern regions.

Brazil has a regulatory framework for organic agriculture, beginning with the 2003 Organic Law, further strengthened by the 2007 certification decree and the launch of the National Policy for Agroecology and Organic Production (PNAPO) in 2012. Certification is available through three systems: audit-based, participatory guarantee systems (PGS), and social control for direct sales.

He also emphasized two innovative national programs:

- **The National School Feeding Program,** which mandates at least 30% of school meal ingredients be sourced from family farms, with a preference for organic and agroecological products.
- **The Food Acquisition Program,** which purchases food from smallholders for distribution to institutions addressing food insecurity.

In 2024, a new law was passed, Bio-Inputs Law: Promoting Agricultural Sustainability And Input Autonomy, now permits farmers to produce some of their own inputs—like microorganisms—under safe practices, supporting more independence from commercial agrochemical markets.

Despite these positive policies, Benjamin noted major barriers to implementation:

- Widespread bureaucracy,
- Lack of training among public service providers and bank officials,
- Limited credit and insurance access,
- High certification costs,
- And insufficient support for cooperatives, education, and innovation.

He shared a personal example of working with a local state bank to develop Brazil's first loan program specifically for organic soybean production—highlighting how individual initiative and institutional openness can drive systemic change.

Benjamin concluded by underscoring the critical role of education, both at his university, which offers an agroecology-focused agronomy program, and through public investment. He called for expanded public financing, streamlined procedures, support for research and local markets, and government-covered certification to truly scale organic and agroecological farming in Brazil.

ERIC GALL, Deputy Director, IFOAM Europe

Eric outlined the evolving policy landscape for organic agriculture within the European Union (EU), emphasizing both achievements and mounting challenges.

IFOAM Organics Europe is part of the IFOAM family and represents over 200 members across Europe and across the organic value chain—farmers, processors, retailers, and certifiers—working to ensure that the organic movement speaks with one voice to EU institution. Headquartered in Brussels, the organization actively influences EU policy on agriculture, environment, food labeling, research, and seed legislation. He emphasized that even though everyone at the conference is convinced that organic farming provides solutions to the challenges that our societies face, we need to convince the policymakers.

Gall traced the growth of organic agriculture in Europe, highlighting a decade of strong expansion (10% annual growth), now totaling 17 million hectares and a €46.5 billion market. This momentum led to a major breakthrough in 2020 when the EU included an ambitious target of 25% organic land by 2030 in its Farm to Fork and Biodiversity strategies—marking the first time organic farming was centrally positioned in EU policy.

He emphasized the Court of Auditors' 2022 report, which identified organic farming as the best pathway for agri-environmental transition, providing environmental and health benefits and helping shift conventional farms toward more environmentally friendly practices. A clear recognition that organic agriculture plays a central role in making agriculture more sustainable,

However, recent political shifts present challenges. In 2023–2024, widespread farmer protests across Europe—sparked by economic strain and the conventional Farmers' Trade Union convincing policymakers the problem was environmental legislation. This coincided with a surge in far right and conservative parties in the European Parliament. This has led to a new EU policy focusing on "simplification" rather than sustainability. Still, organic agriculture retains policy support, particularly for youth engagement—with 21% of organic farmers under age 40 compared to 12% in conventional agriculture. So, they launched an Organic Europe Youth Network. Still there are a lot of uncertainties currently regarding a common agricultural policy.

Gall underscored the importance of public procurement as a tool to scale organic markets, calling for an EU-wide target for organic products in schools, hospitals, and public institutions—building on models like France's 20% organic requirement for school meals.

The core of Eric's presentation focused on sustainability metrics. He warned of growing pressure from regulators and markets for sustainability data, particularly through Life Cycle Assessment (LCA) and Product Environmental Footprint (PEF) methodologies. These approaches, he argued, fail to capture the full ecological benefits of organic farming, often favoring high-yield, input-intensive systems and ignoring factors like biodiversity, pesticide use, or soil health.

He criticized the PEF for generating misleading results, for example, scoring conventional and organic apples identically, and warned that metrics designed for products like fridges or cars are poorly suited to agriculture. Organic's multidimensional benefits are lost in such narrowly constructed models, creating a "carbon tunnel vision" that marginalizes organic in favor of "simplified" regenerative branding.

As a solution, he presented France's Planet-Score—a multi-criteria food labeling system developed by the organic movement, which integrates pesticide use, biodiversity, climate, and animal welfare. Unlike PEF-based scores, Planet-Score can differentiate within product categories, giving organic products the recognition they deserve and guiding both consumers and producers toward lower-impact practices (https://www.planet-score.org/en/).

He called on the organic sector to actively shape the future of sustainability measurement, warning that otherwise it risks being sidelined by unregulated or greenwashed alternatives. He encouraged organic stakeholders to embrace outcome-based indicators, harmonize data methodologies, and exchange data among the organic sectors to meet the data demands from policymakers and markets.

COMMON THEMES FOR PANEL 8

1. Systemic Policy Engagement
   Organic change is not just about farmers—it's about shifting national and international policies. Speakers from all three regions emphasized the need for organic and agroecological systems to be recognized as public goods, supported by law, regulation, and sustained investment.
2. Institutional Innovation
   Tanzania's National Ecological Organic Strategy, Brazil's school feeding laws, and the EU's procurement and labeling reforms all demonstrate the power of innovative public programs to embed organic into mainstream policy.
3. Farmers at the Center
   Speakers called for accessible certification, training, finance, and input systems that serve the needs of smallholders and cooperatives—not just industrial actors.
4. Multi-Stakeholder Collaboration
   Whether in Zanzibar, Porto Alegre, or Brussels, inclusive dialogue—across farmers, governments, academia, and civil society—was key to progress.
5. Metrics Matter
   Poor metrics can misrepresent organic systems. Presenters criticized methods like the Product Environmental Footprint (PEF) and called for new tools—such as France's Planet-Score—that reflect biodiversity, pesticide reduction, and soil health.

ACTION ITEMS FOR PANEL 8

1. Secure Long-Term Funding
   Invest in transition support and implementation of national strategies—not short-term pilot projects.
2. Redesign Certification & Input Access
   Support participatory guarantee systems (PGS), reduce certification costs, and legalize local bio-input production.
3. Scale Organic Public Procurement
   Establish organic targets for institutional meals in schools, hospitals, and public programs.
4. Reform Sustainability Metrics
   Develop outcome-based, multidimensional indicators that reflect organic's full value.
5. Promote Global & South-South Exchange
   Encourage mutual learning across continents to share solutions and scale impact.

Panel 8 – Discussion

***Question 1:** What resources do you need to be successful in the future?*

Mwatima Juma - Emphasized two key resource needs:

1. **Knowledge Sharing** – Access to proven, successful strategies that can be adapted and applied locally, rather than starting from scratch.
2. **Financing** – A major barrier is the lack of government funding. In Tanzania, although a national organic strategy was launched, the government allocated a very minimal amount of money to its implementation—highlighting the gap between policy and meaningful support. The government continues to prioritize subsidies for chemical inputs over agroecological methods.

She also noted the need for technical support, not just in skill-building but in building confidence among practitioners.

Eric Gall - He emphasized the need for two critical resources:

1. **Public Policy Support** – Strong, consistent government backing is essential. Citing Denmark as a model, they noted that government-funded capacity-building for organic organizations helped producers negotiate better with retailers and expand organic market share.
2. **Support from the Organic Movement** – Investment from within the movement is also crucial. Representation at national and EU levels allows the organic sector to influence policy, build unity across stakeholders, and present a strong, collective voice. While not always easy, especially across diverse interests, this collaboration is vital for advancing organic agriculture.

Benjamin Dia Osorio Filho – He states that in Brazil, the demand for organic products is rapidly increasing, but production cannot keep up—particularly for key inputs like organic soy and corn. For example, a company wanting to scale organic egg production is limited by a shortage of organic feed. Many farmers believe organic production is unviable due to heavy pressure from input companies and a lack of confidence. To address this, there is a strong need for education, training, and farmer encouragement across the supply chain to build capacity and shift perceptions.

Question 2: ***What other policies are you excited about, or that you think will be successful in the future?***

Mwatima Juma - One policy area with strong future potential is addressing highly hazardous pesticides. Their use has become uncontrolled, especially in regions where banned pesticides from other countries still find markets. Her country's registration and deregistration systems of hazardous pesticides are not working well. Pushing for organic agriculture offers a pathway to reduce their use, which could significantly impact public health by lowering risks of non-communicable diseases such as cancer, infertility, and diabetes. Targeting these already-identified hazardous pesticides through organic policy could help eliminate them from the environment.

Benjamin Dia Osorio Filho - The prohibition of pesticides is essential for the progress of the organic movement, but in Brazil, the reality is quite different. There's pressure to approve more harmful pesticides like 2,4-D, banned in many countries, are still widely used. Due to glyphosate resistance, soybean farmers have turned to 2,4-D, which is now causing damage to nearby crops like grapes and olives, leading to conflict between soy and fruit farmers. While banning these harmful pesticides may be the future, Brazil remains far from that goal.

Eric Gall - One policy area they are particularly excited about is water protection, which is a major priority in Europe due to widespread pollution issues, including PFAs contamination. Estimates suggest this pollution costs the EU between €5 billion and €100 billion annually. In France, public water agencies have been co-funding organic conversion subsidies for over a decade, recognizing the clear benefits for protecting water catchment areas. Just recently, the French Organic Farmers Association called for a full transition to organic farming in all catchment areas, highlighting the mutual advantages for public authorities and citizens through improved access to clean drinking water.

Follow up Question: ***Do you have data on that in terms of how much cities are paying to clean the water that's polluted versus how much they're paying to incentivize farmers to farm organically?***

Eric Gall - Yes, there is clear data showing the benefits of organic farming for water protection. A German study published in Nature comparing potato production found that pollution costs were €1,268 per hectare for conventional farming, but only €0.60 for organic. In France, the public water agency for the Paris area reported a 77% improvement in drinking water quality linked to organic practices. Water pollution costs are relatively easy to quantify, making it a powerful way to demonstrate the value of organic agriculture.

Question 3: ***A question about life cycle analysis. Questioner was wondering if some of the metrics Eric discussed could be dynamically incorporated into the planetary boundary maps developed by the Stockholm Resilience Centre. Specifically, could this approach help visualize where exceedances—like those for nitrogen and phosphorus—are occurring, and how agriculture might help mitigate those impacts within planetary limits?***

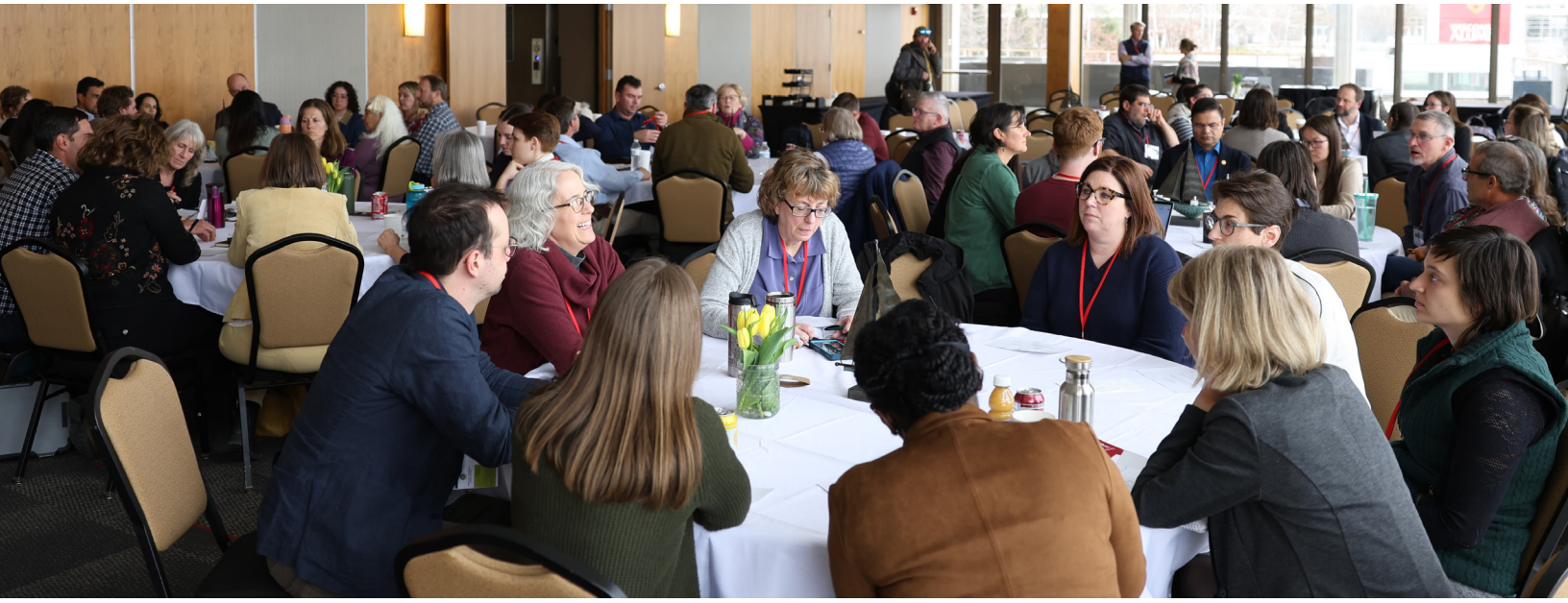
Eric Gall – He acknowledges not being an expert but emphasizes the importance of incorporating indicators into life cycle analysis (LCA) that reflect planetary boundary hotspots—such as biodiversity loss and novel entities. Without this, LCA can miss critical impacts. For example, in Brittany, France, intensive animal production may seem efficient by LCA standards but causes severe eutrophication, green algae, etc.. Thus, LCA must go beyond efficiency metrics and include complementary indicators aligned with planetary boundaries. This is the approach taken by initiatives like the Planet-Score.

Question 4: ***In Europe, we're facing a major challenge with Sustainable Public Procurement, especially in school meals—because regionality can't be included as a criterion in public tenders. While there are some ways to work around this, it's really limiting our ability to promote truly sustainable and locally appropriate food systems. How do you see a path forward for aligning procurement policies with both sustainability and fairness, especially when imported organic food may meet the label but not ethical or environmental standards?***

Eric Gall – He recognizes the frustration with procurement rules that prevent prioritizing regional products, noting that "local" doesn't always mean "sustainable." This creates tension between locally sourced and organic products, especially in tenders where regionality can't be explicitly required and is often misused as a stand-in for sustainability.

However, there are inspiring examples showing that it is possible to combine organic and local goals. In Bordeaux, for instance, the public kitchen serves 36,000 meals a day and has reached 30% organic sourcing by building strong, practical partnerships with local producers, navigating real-world challenges like apple sizing for consistent portions. Similarly, the Dordogne department has achieved 100% organic sourcing in public canteens. Despite these successes, challenges remain—particularly with tools like the PEF (Product Environmental Footprint), which some municipalities use in procurement, but which often undervalue organic production. That's why France introduced clear targets through its climate law: 50% sustainable food in public procurement, including a mandatory 20% organic. These targets are critical to avoid greenwashing and to ensure that organic producers are supported through stable markets.

GROUP PERCEPTIONS, IDEAS, AND ACTION



The audience was separated into four groups to discuss four predetermined questions and then present their collective ideas to the whole audience.

The Questions were:

1. **What themes or commonalities did you notice throughout the event?**
2. **What are some opportunities for future policy adaptation?**
3. **What are some opportunities for future research?**
4. **Where do you see opportunities for collaboration?**

***Summary of Question 1:** What themes or commonalities did you notice throughout the event?*

The main commonalities identified were:

1. Organic as a Movement
   - They thought that organic is still a niche market, with a low percentage of acres in organic versus what is being farmed conventionally.
   - Organic has problems with "scaling-up" with the big commodity crops due to reduced yields, lack of organic processing, and markets.
   - The groups agreed that organic can greatly improve from the niche market through improved storytelling of Why Organic is better for human health, environment, and communities. We just need to do a better job of marketing all the benefits of organic agriculture.

2. Access is a major problem of why organic agriculture is not expanding at the pace predicted.
   - Access to land for new and young farmers is a major hurdle in starting a farm, especially if they do not come from a farming family and already have land. Acquiring land and the credit needed for loans is a huge barrier.
   - Access to knowledge, especially new research. The request from farmers is for academic research to be published not only in scientific journals but also written in easy to read and understand documents for farmers.
   - Many new and young farmers do not have access to technical assistance that would teach them the skills and provide the needed knowledge of how to manage specific crops, equipment, and markets to be successful.

- Access to loans/capital for specialized equipment or regular equipment to be able to be efficient and/or scale their production.
- Access to markets is another major barrier as new and young farmers may not have connections to enter available markets and know who to contact and who to trust to make this connection.

3. Big commonality was for all to Focus on Next Generation.
   - How do we create programs/opportunities for generational knowledge transfer?
   - How do we create and promote Technical Assistance geared for new and beginning farmers.

Summary of Question 2: What are some opportunities for future policy adaptation?

The main research and policy opportunities were:

1. Translation of standards worldwide. Audience would like to see a common standard, like USDA Organic Standard and brand to be universal, so that organic producers and consumers can be assured of all producers and products to be of similar quality, no green washing, and produced with the same rigor to organic standards for all to compete fairly in the marketplace.

2. Advance Organic procurement quotas for schools, institutions – worldwide
   - One example of how to achieve more organic procurement is through programs like Local Food Purchase Assistance Agreements (LFPA) and bio-districts.

3. Promote market development for organics across all sectors of grains, produce, meat, feed, and fiber, etc.

4. Expand Organic Certification, by creating less arduous certification compliance, reporting, and record keeping without losing the strength of organic certification.

5. Create appropriate organic labels that are transferable and easy to understand for all consumers.

6. Support for new farmers that aids them in addressing the major access problems outlined in question 1.

Summary Question 3: What are some opportunities for future research?

1. Research that is translatable for farmers
   - On-farm research
   - Farmer-led research
   - Outreach publications, events, other media forms that are farmer focused

2. Research on crop(s) and livestock integration.

3. Weed control on grains and how to close the yield gap.

4. How to build resiliency through different crops and varieties, different cover crops, etc.

5. Food as medicine. How do we best position organic agriculture to lead the MAHA (Make America Healthy Again) movement?

6. Supply chain (farmer, processor, market, consumer, etc.) research.
   - Research into right-size production to meet increasing demand across the supply chain.
   - How to create/expand markets and consumer demand for organic products?

***Summary of Question 4:** Where do you see opportunities for collaboration?*

1. More collaboration and knowledge exchange with indigenous communities worldwide
2. Better outreach and media collaboration
   - Better storytellers about Organic, Food as Medicine
   - Help consumers make informed decisions
3. Better collaboration between Dept. of Health and Dept. of Agriculture (food as medicine)
4. Rural development planners with Organic farmers and processors to increase rural economic development
5. Study abroad programs for students and farmers to learn from and exchange knowledge, techniques, and other resources.
6. Expand circle of collaborators to include chefs, doctors, schools, institutions, public venues (zoos, fairs, etc.) to help advance organic availability/promotion beyond the grocery store.
7. Collaborate with journalists, grocery store marketing departments, and others to transform research results for media, farmers, and consumers.

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